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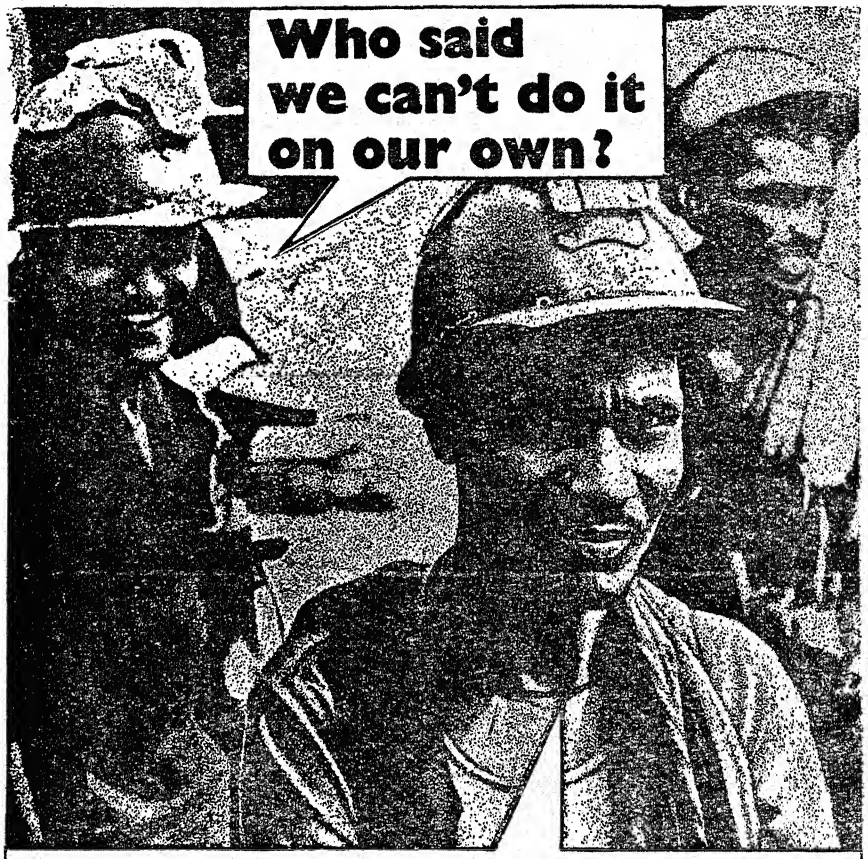

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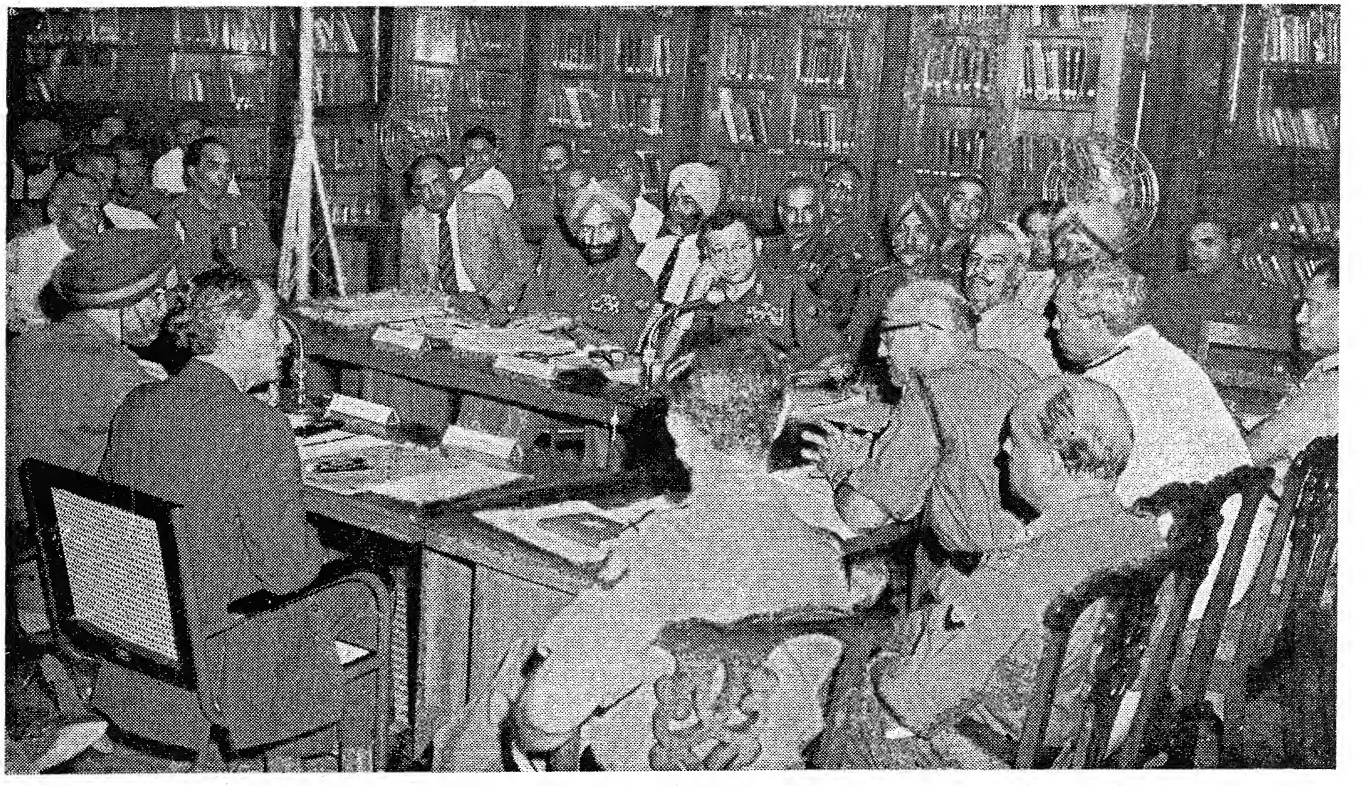
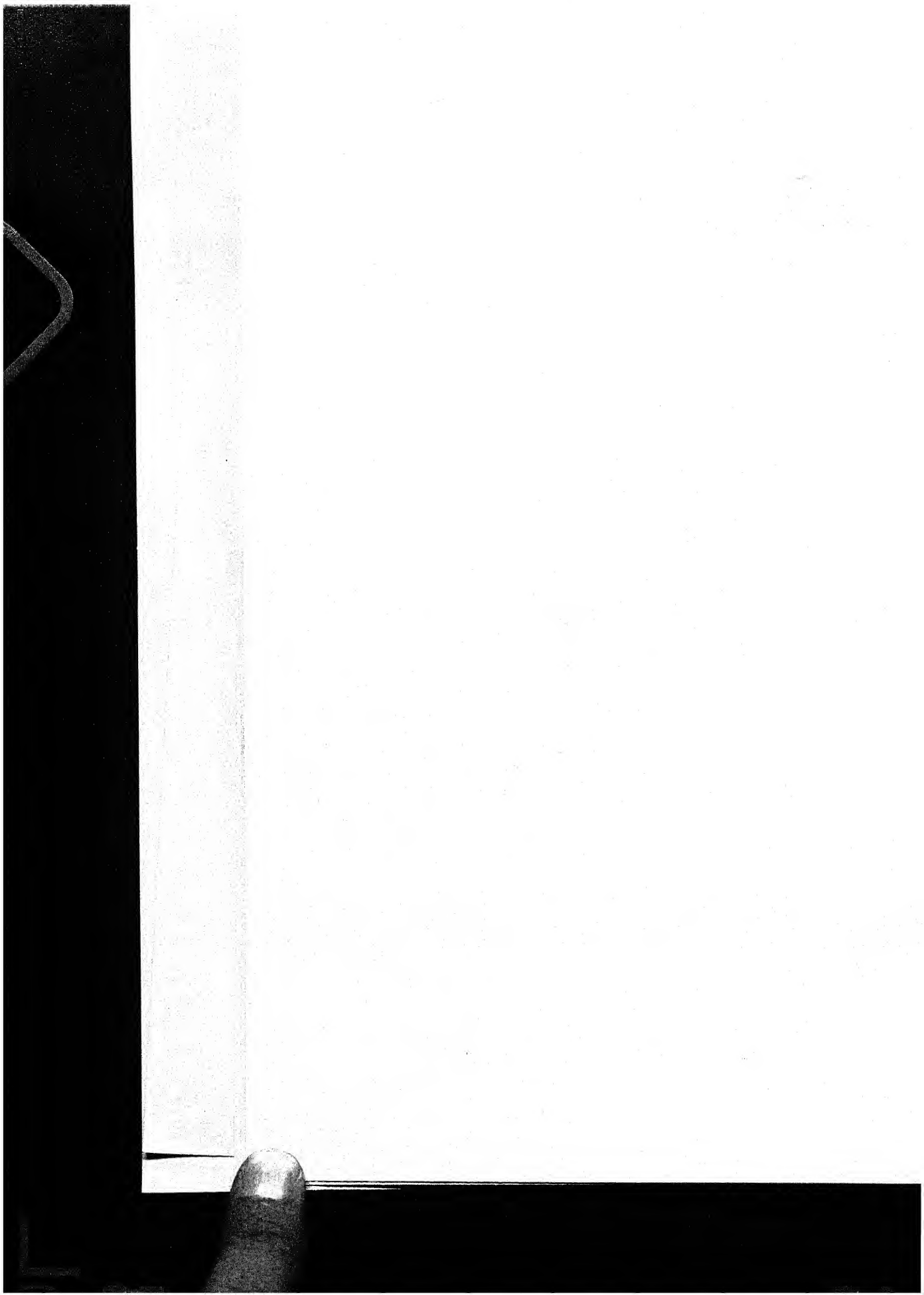


General G.G. Bewoor, PVSM, Chief of the Army Staff inaugrating the First USI Seminar on Reorganization of the Infantry Division.



REFLECTIONS ON THE GENERATION GAP IN OUR TIMES

MAJOR GENERAL TNR NAYAR (RETD)

IT is natural for every generation to feel assured of its uniqueness and superiority. With sentiments bordering on adoration we hold as sacred certain values and experiences which have given us genuine satisfaction. We deem it as our duty to hand over these bounties to our successors. While doing so we are shocked when we learn that the new generation has little use for a good many of our convictions. In feeling so, our generation is no exception. Our wise elders had warned us about the irreversibility of natural laws ; but none of them was astute enough to tell us about the magnitude and velocity of the changes which actually took place. Like our predecessors, we had to learn these by trial and error. In addition, we experienced a wider gulf due to the attainment of independence, occurrence of technological changes, and wider dissemination of information through mass media. The phenomenon of generation gap must be fully understood in the ever changing socio-economic panorama to avoid errors of judgment.

It is a natural law for living beings to keep changing. From experience we also know that institutions must also follow this, as otherwise they are likely to stagnate and decay. In the progress of mankind through different stages, the phenomenon of change has displayed varying propensities. The passage of time has generally accentuated the velocity of changes which are beneficial to man. This is because time is synonymous to knowledge, technological progress, and urbanisation. In more than one sense educational institutions are the fountain heads of knowledge. Therefore radical changes tend to initially manifest in them. We should also note that our educational institutions are no longer the preserve of the elite alone. On the contray, they are more plebian and are subjected to social, economic and political pressures. Thus they act as barometers of social changes. Sri V.V. John. the noted educationist has commented on these changes thus :

"I refer to the cleavage and even hostility that is growing between the senior section of the faculty and the younger members in many universities. That the latter have come to look upon themselves as a class with distinctly different interest from those of the deans and heads

of departments may be seen from the fact that, unlike the practice of former years, teachers associations no longer elect senior professors as their presidents."

We in the military would do well to take serious note of this change as all our manpower comes to us after having been processed and conditioned by similar institutions. Every new generation is motivated by different values. Recently I had the privilege to serve on the officer-trainee selection committee of the Punjab National Bank. We interviewed some hundred and fifty applicants provisionally selected from about eighteen thousand or so. There was no doubt about the high attainments and IQ of the candidates. But what made a deep impression on me was the revelation of their ignorance about many of our bygone national leaders. Similarly, they were lukewarm about many of our cultural values.

SOCIAL CHANGES

Ours is a heterogeneous society, seventy percent of which is staying in rural areas. Rural life tends to be harsh as the pressure on land is very heavy and there is acute unemployment and under-employment. Accordingly rural communities are conservative and dislike changes. When change is inevitable, they prefer it to be gradual and evolutionary so that they would not have to undergo unacceptable risks. Urban societies enjoy a higher standard of living and have greater resources. So they do not mind experimenting with revolutionary changes, if the profits are attractive enough. Thus diverse patterns of social changes are inevitable amidst us, each progressing towards its objective with its own speed. Consequently any generalisation of the traits of the younger generation would run into difficulties.

All over the world the military hierarchy is conservative, and is not prone to accept changes on their face value. There is no getting away from the truth that the Army loves to hold on to old values even after the expiry of their usefulness. Because of this trait even today horsed cavalry, bugle calls, swords and cross-belts are entertained. But with regard to weapons and equipments the tendency is quite the opposite—though often not successfully. In the field of management and human relations we have undergone a lot of changes. The outlook of officers has also changed. The late Field Marshal Wavel has narrated the incident of his first ADC asking him as to how many polo ponies he may keep. Today, Capt Varghese would ask no such question, for he would probably be preoccupied with his scooter advance. In 1941, I had occasion to assist Maj KM Cariappa (later our Chief) to organise fox hunts and paper-chase events. Anything like that would be unthinkable in the changed conditions. My first Subedar, Easwara Pillai, knew the com-

plete antecedents of all the men in the sub-unit as they all belonged to the same neighbourhood. Such an idealistic situation can not exist now. In the 'good old days' of chivalry it was considered infra dig for a gentleman cadet to volunteer far anything other than an arm as services did not provide enough glamour. During those days representations against ACR's were unheard of, and if this unwritten code of conduct was broken it became the hot news of the cantonment. There was no complication like career planning. In the British-Indian Army tradition, morale and discipline were built on a foundation, the certitudes of which were impregnated with imperial values. In our free democracy, with its emphasis on a socialistic pattern of society many of these bricks, which bear the imperial coat-of-arms have to be changed.

Even at the best of times the foundation of an edifice cannot be changed without serious risk to the safety of the structure. But our Army has done just this, and that too while fighting wars. This is a great credit to our senior officers. With no flourish, but with diligent devotion to duty they have brought forth a nonviolent, but neverthless radical change in the psychological content of the Army. This transformation is continuing. It has necessarily to be slow, as otherwise the fighting efficiency would suffer. As a result of such changes we have radically deviated from the past in matters like recruitment, promotion policies, vocational training and the like. But the greatest change has been in officer-men relations and in the Indianisation of the officer corps. Such changes must necessarily continue, for there could be no finality in them. For perpetrating this, it is necessary for the officers to understand the social and institutional changes which are taking place, as well as their tempo and destinations. In my view it would be calamitous to blindly accept any visible changes of Western society as a sign of progress. Imprecise talk like 'traditional' and 'modern' societies could also land us in trouble. To date, very little organised effort has been made to spread knowledge of the transformation that has lately taken place amidst us. Our traditional 'Sanskritic' society has been readjusting itself to meet the needs of the new forces and temptations of the contemporary days. It has displayed responsive resilience and accomodation while meeting the challanges of the machine age. Our hierarchial family set-up which has stood the test of time has also shown considerable flexibility. Its rigidity has given place to a loose federation, in which many of the humanities of the past generation have an honoured place. The change is continuing, and it is too premature to forecast where it will lead to, even during the next twenty years. Indeed, it would be a fascinating paradox if the highly industrialised societies of the West eventually come to realise the essentiality of humanities, as we do now. Ours is not a stand against science and technology. Our faith is that morality, religion and spirituality must keep pace with material developments.

CHAIN REACTION

At this stage we may profitably take a look at the United States, which is the first country to undertake superindustrialisation. This is the outcome of accelerated research, invention and production technology. Unfortunately, it is progressing with its own momentum, almost like an uncontrolled chain reaction. It has produced a rabid craze for change, and speed. It is consuming resources without giving corresponding satisfactions, either in the physical or metaphysical areas. Humanities have been relegated to the backseat, particularly in the urban area. Many time-honoured traditional values have given way to a pseudo and superficial culture of transcience. Even abiding human relationships are disintegrating in the artificially created pressure of living. Life's deeper problems have been ignored to the dismay of many wise men. But the technocrats are engaged in a blind race to an unknown destination. For many of them the past is of no consequence. Even the present is of little use, for they consider it having been used up already. It is only the unknown future that matters. Little do they realise that when they reach there, it would have become the present, and not much later the past. Thus, in spite of unprecedented material progress, lasting peace has eluded the nation, and it is caught in many contradictions of its own making. Power politics, racial violence, social frustration, drug addictiveness, lawlessness and so on are the visible manifestations of these contradictions. Even in the physical plane, energy crisis and ecological problems are mounting

The Massachusetts Institute of Technology which has been studying these problems in detail has come out with certain chilling conclusions in their work "The Limit To Growth". To quote, a relevant passage concerning the crisis which mankind is facing :

> "If the present growth trends in world population, industrialization, pollution, food production, and resource depletion continue unchanged, the limits to growth on this planet will be reached sometime within the next 100 years."

Will reasonableness prevail, and the people who count take note of this kind of warnings ? Or a technocratic elite be allowed to run away with computers satellites and so on, hitching the silent majority to itself ? While the United States with its great record for humanism, art, literature and religion be submerged by the newly developing culture of transcience, which could have but chimerical objectives ? Are her citizens becoming equivocators ? These are some of the possibilities posed by superindustrialisation. We have our great problems in India, but we should be grateful that they are of a much different category.

During the last quarter of a century we have radically altered. Independence has widened our visions and enlarged our aspirations. The

new generation which has come to age is alien to the indignities of an Imperial administration. They have not come across superior human beings who used to solve all problems in a rough and ready manner. The new young world will not put up with second-rate leadership which depends upon authority to extract work and obedience. They will refuse to be dumb, and would ask awkward questions. Though education is not yet universal, its impact is far more than what is generally realized. The many-folded increase in newspapers, magazines and films, and the near omnipresence of radio have opened up new frontiers of knowledge. Adult franchise and free elections (which incidentally is a pasttime and preoccupation to many) have given to many people a feeling of participation and a desire to share authority. These have laid to rest Kipling's Indian. The 'Great Tradition' of India is truly revealed in her literature, folk lore, dances and fine art. Significant changes are taking place in these areas, revealing impatience with any passive acceptance of poverty and ignorance and authoritanism. Yet, these changes have shown a desire to retain those aspects of our precious heritage. What is happening is an updating of humanities to effect a synthesis with the new socio-economic and technological objectives. Our experience so for is that humanities and technology are capable of coexisting and proceeding to higher goals.

Admittedly there are internal tensions in many areas. But communal riots are fewer, and the injustice to Harijans is on the decline. Untouchability is illegal. As a political institution, the Raja had become obsolete even before he was legally wound up. Only those people who had witnessed the pernicious 'ji huzoor' regime will be able to appreciate the changes which have lately occurred in our stagnant society. The cult of nonviolence, and democratic administration have revealed their best results in these spheres. Land reforms have done much more than an equitable distribution of land to the tillers. It is breaking up the hierarchial agricultural society and changing the environment in which the joint family flourished. The shelter, solace and security which were provided in laissez faire society are on the way out. Industrialisation is rapidly increasing and along with it urbanisation as well. Such shift bring in their wake a host of social and culture chages too. Pragmatically, many customary prejudices have been eroded and some weaker bastions have already fallen.

NEW STANDARDS

But, all is not well either. There is food shortage, unemployment, inflation and social unrest. Student strikes, labour agitations, lock-outs and so forth are the natural corollories of mistakes, corruption, inefficiency and dissatisfaction. There is an immediate requirement to arrest

the pessimistic prophecies being made on account of food shortage. There can be no doubt that a deep transformation has taken place in the traditionally patient Indian multitude. They are showing much impatience and are in no mood to put up with ineffective leadership. Unless military officers thoroughly understand this mood they cannot be effective. New standards and attitudes are essential to keep up with such drastic socio-psychological changes. All the same this is not a mandate for blindly rushing to the unknown.

I have often thought over the radical changes which have taken place in the Army, in matters like training, recruitment, and discipline, even within the compass of my own service, which was just over thirty-five years. It is a marvel how we managed to maintain efficiency, morale and discipline, despite such changes. Between the two World Wars parade ground drill consisting of 'form fours'. 'column', 'close column' and 'mass' on bugle calls was the hallmark of a unit. Though the uselessness of this drill in battle was fully known, it was thought that they were irreplaceable for instilling instant individual discipline obedience. They were thought to be the best means to achieve unit solidarity too. Yet they were unceremoniously dispensed with when the compulsions of the Second World War necessitated a change. This, and similar examples have convinced me that morale and discipline are not based on soulless ephemeral values. They are deep-rooted, and can accept different shades of surface sands which are not pernicious. This comprehension has helped me to understand diversed behavioural responses from subordinates when I was sure of their intrinsic discipline and loyalty It is strange but true, that different persons react differently, even under identical circumstances. This may well be because of the fundamental differences between individuals, and the inscrutibility of the human mind. On the whole I came to feel that in the Army we insist on too much of behavioural commonality.

In the wake of the changes which are taking place around the armed forces there is a clear necessity to distinguish between behavioural and performance disciplines To what extent outward behaviour is necessary to be regimented cannot be lightly answered. For its ramifications need to be studied in great detail. No such study appears to have been undertaken, covering the entire gamut. Piecemeal studies have been undertaken, but they have serious limitations. But one thing appears to be emerging and that is not to enforce outmoded social customs and manners. It would be desirable to study all features of those practices, the continuance of which is likely to create unhealthy chain reactionst This study must be carried out well in time to retain the forward looking-posture of the Army. Senior officers must particularly guard against ideological intoxication, for more often than not 'best is the enemy of good'. As I see, in the future more diversity is inevitable in the code of

conduct is messes and clubs, social routines and the like. Officers would like to have much more latitude to express their personal views on many matters. The citizenship rights which they know of, will not be easily surrendered. There will be more reluctance to tow the official line 'blindly'. Tkey would like to be convinced of its advantage. The paramount necessity for officers to practice what they preach, and set a good example for others to emulate is to be seen in this light.

Before enforcing behavioural practices, it would often pay good dividend to reflect as to what their effect would be on performaces. Both cannot be completely separated, for they are interlinked in various layers. The solidarity of the Army is cemented by discipline, esprit de corps and morale. Fear in battle has to be overcome by leadership and behavioural qualities. Without minimising the importance of an individual, it must be noted that the performance of a unit is very much dependent upon collective courage, collective will, and collective readiness to accept risks. Thus, within a good unit some common place individuals could be got lionised. The crucial role of the leader from section commander upwards is to act as the nucleus for the coalescence of these collective symptoms to manifest. Any behavioural lapses which may militate against this essential necessity cannot be permitted, and must be eradicated. However care must be taken before the heavy roller is used, for its frequent use may sink the field permanently and make it useless.

MILITARY CONDUCT

From times immemorial the special requirements of the military were universally recognised and acted upon. This is how the Kshatriyas, the Spartans, the Norman knights, the Samuris and so on came into being. These may be regarded as attempts to breed a super military race, in isolation from the rest of the community. A less intense and modern version of the same desire could be seen in our cantonments, and in the code of military conduct. Similarly, the military tries to protect its interests by selecting cadets to the NDA when they are young, and by giving them training in an atmosphere isolated from abnoxious side-effects. All these are necessary to maintain discipline and efficiency. But we should also recognise that with the passage of time such isolation would become more difficult for reasons already discussed. Perhaps a better solution for the distant future may be found in improved education and selection methods. Any way the gauntlet of catholic education will have to be run at a future date. A wise leadership would introduce timely changes in a controlled manner. Those who doubt the wisdom of this measure may take shelter behind Wellington's definition of discipline : 'knowing one's duty and doing it'.

While putting on paper some of my experiences and thoughts it was never my intention to suggest solutions. That would be foolhardy. An understanding of the problem and giving it recognition is in itself an education and achievement. My desire is to share my thoughts with others, particularly those young officers who are separated by a generation or more. As a young officer I often thought that many customs and practices were inviolable and that they had little to do with what was happening around us. Consequently on many occasions I have maintained a rigid stand. Looking back on some of them with the maturity born of grey hairs, I now feel that better results could have been achieved, with less rancour, if I had paid enough attention to the effects of the generation gap. It would pay well to understand this phenomenon in an organised manner. There can be no doubt that significant changes are all the time happening in our social set-up and that over a period of time the manpower acquires different aspirations and interests. During peace time the main military attention is on training. But this training is focused on weapons and tactics, and little is done to understand the problems of generation gap. This may be because the ill effects of this hiatus are not immediately discerned. We have seen that the younger generation has greater ego, lesser patience and more self-assurance. Many of them feel that they are the custodians of new ideas and that the 'sweat' is normally not responsive to these. These days junior officers worry about career prospects and resettlement. All these are facts of today's military environment and must be squarely met. The younger generation would do well to more critically analyse their views on modernisation, for they have a tendency to copy the West and accept the symptoms of their diseases as signs of progress. There is no harm in importing technology ; but our culture and civilization are of export quality.

Today's leaders are charged with the responsibility of providing for the future's needs. By proper appreciation the needs of the future generation could be adequately met, in all spheres. Every generation must be prepared to sacrifice its nostolgic memories, if circumstances so demand. If my experience is any guide, I must say that this highmindedness does not come as second nature. I am now "Passing it On" : some of my reflections, before they get smudged with additional doubtful wisdom with the passage of time !

INDIA AND THE DETERRENT

MAJOR NK KAPUR

'A country which renounces nuclear weapons it is capable of producing, accords to other Powers the ability to raise formidable threats against it.'
—Le Siecle de Democles

INTRODUCTION

India has repeatedly declared her resolve to the world that she will not make nuclear weapons and will use nuclear power only for peaceful purposes. Yet she has not signed the Nuclear Non-Proliferation Treaty and has kept her option open. Obviously she feels that her national policy in this respect may change in the future.

The trend of the Strategic Arms Limitation Talks, the developments in Europe, the rise of China, and the growth of Japan's industrial might, indicate that a new international power system is evolving in which strong regional power centres will play a prominent role. Evidently China would tend to play a dominating role in South-East Asia.

Those who are concerned with international relations and strategy agree that, since the situation in Europe has stabilized, for the next fifteen years or so Asia is more likely to be an area of tension and conflict than any other part of the world. There can be little doubt that these tensions and conflicts are likely to be built up around China and the growing nationalism among Asian societies.

Perhaps it is axiomatic for India to balance the power equation in this area in her own interests unless she wishes to be compelled by circumstances to heed the behest of one or the other power group.

The aim of this paper is to analyse the alternatives available to India in her quest for security and to suggest a possible choice in keeping with the prevailing global situation.

CHINESE NUCLEAR CAPABILITIES AND THREAT

CHINA has come a long way since Marshal Chen Yi declared : "We will build atomic bombs, no matter what—even if the job makes it necessary for us to go about without wearing pants." She exploded her first atom bomb on 26 Oct. 1964 and her first hydrogen bomb on 17 June 1967. She sent up her first satallite in space in April

1970. Jane's Weapon Systems concludes that China has deployed 2485 Km range IRBMs in Tibet and that she has eighty to hundred IRBMs with ranges from 2500 Km to 6000 Km. It also suggests that she would have 25 ICBMs with ranges up to 10000 Km operational by 1975. No estimates or intelligence reports are forthcoming on her developing tactical nuclear weapons. It would, however, be prudent to assume that she is capable of deploying low-yield mortars, guns and missiles.

It is evident that the Chinese aims are to regain China's greatness and assume world leadership. This however is a distant goal. She must have set herself some short-range goal. This could be to remove American and Russian influence from South East Asia followed by a steady domination of countries of the region by stirring revolutiondry elements and coming to their help in the form of subversion, guerilla warfare, a threat of attack, or a limited attack itself. She is not likely to unleash a nuclear war against these countries as this would invite a Soviet-American intervention. However she could resort to the use of tactical weapons in limited numbers without the fear of escalation.

The USA has declared her desire to withdraw from South East Asia. This may come about by 1980s. In that event there will be a void against China's nuclear power. She would try to extend her influence over the entire South East Asia through Burma or Thailand. It would be correct to mention here that Japan has the competence of becoming a nuclear power almost immediately. Her defence planners have indicated that there could be no bar to their Self Defence Forces acquiring nuclear weapons for defensive purposes. Thus Japan might take the plunge to reestablish balance of power.

INDIA FUTURE ROLE AND THE PRESENT POLICY

Is Japan's balancing China in India's interest ? It depends on what role India wishes to play in the future. She has the following options :—

(a) Become a nuclear nation.

(b) Become a cytoplasm in a grouping led by another nuclear nation.

(c) Become an isolated, nondescript nation.

In view of her size, population, geographical position, economic potential, cultural heritage, and intellectualc apacity the only conceivable normal objective for her is to strive to be a nuclear nation, radiating her peaceful and creative influence over a grouping of friendly nations. Charles de Gaulle has said "It is difficult to see how a nation without

nuclear weapons can really be independent." Similarly Marshal Chen Yi has aired his views : "State without nuclear weapons are destined to be subservient to nuclear powers." It would be in keeping with the requirements of South East Asia that India strives to become nuclear.

The present national policy is perhaps motivated by the thinking that China is not likely to use nuclear weapons. The protagonists of this policy also argue on the following lines :—

(a) We are dedicated to peace. Our efforts are being chanelled for a universal and general disarmament. Our capacity to work for disarmament will diminish if we enter the nuclear arms race.

(b) We cannot afford nuclear armaments. We must concentrate on economic development.

(c) We are against the proliferation of nuclear weapons because it increases the risk of war.

The followers of the present policy do not take realities into account. Although China believes that an all-out nuclear war is disastrous, she feels that she can recover from it. In our context, as discussed earlier, there is nothing stopping her from using tactical nuclear weapons.

We must also understand that Central Europe has now become stable because of parity in power. In military confrontations in Asia, with one side being nuclear, peace would be a far off cry.

It may be true that we cannot afford a complete gamut of nuclear armoury, i.e. stockpiles, long-range supersonic bombers, IRBMs, ICBMs, interceptors and the second strike capability. This will be discussed subsequently. But it is a fact that phases of very rapid economic growth in the world are associated with armaments. An important reason why defence and development can be complementry is that the basic industrial sectors which support a military programme are the very sectors that sustain a modern, civil, industrial economy.

The Nuclear Non-Proliferation Treaty holds such bleak prospects that India should not hold her option awaiting its success. Herman Kahn, a renouned strategy maker from Rand Corporation now at the Hudson Institute, admits that there are many local situations that might be stabilized by some diffusion of nuclear weapons. He gives the example of how the Chinese designs and potential aggression against India might well be diminished or inhibited if India had nuclear weapons.

It can thus be concluded that the present policy is not based on correct arguments and is not in the best interest of the nation.

TREATY WITH RUSSIA AND ALIGNMENT

India has already signed a twenty-year treaty of peace, friendship and cooperation on 9 Aug. 1971 with the USSR. What advantage is this treaty likely to give ? I suppose it is the guarantee of deterrence. At the same time India has taken pains to explain that she remains non-aligned. It may be reasoned that she wishes to take advantage of the fact that both the USSR and the USA have varying degrees of interest in ensuring that India is not forced to yield to a Chinese threat ; together with the economic gains that may accrue.

The main criticism levelled against the credibility of guarantees of deterrence by other powers arises from the political character of such guarantees. Consider the Chinese threat. If she were to bomb the Indian cities with megation weapons, certainly the USSR,or for that matter even the USA, may come to our help. But this is exactly what she will avoid. She is likely to subject Nepal, Sikkim, and Bhutan to nuclear diplomacy ; assist subversive elements ; provide succour to the breakaway elements ; threaten and blackmail India ; even launch limited attacks in the Himalayas using tactical nuclear weapons. She will thus achieve weakening of Indian economy, disruption of its political structure and destroy her prestige as the leader of an Afro-Asian bloc. What does our treaty with the USSR achieve against this threat ? Will the Russians record such low-yield bursts ? Will they agree to India's interpretation of the threat ? What time will be available to India to ascertain the Russian reaction ? Given the USSR the best of intentions, is she likely to react to such low-key operations in the fear of escalation ? In the answer to these questions lies the credibility of the arrangement.

Naval, air and nuclear power is by itself no answer to subversion, guerilla warfare. No answer to an infantry push in the Himalayas ; no answer to limited use of tactical nuclear weapons. No answer to black-mail or demoralisation. These are precisely the conditions the Chinese are likely to create in the immediate and the intermediate future. It is thus apparent that the faith of the alignmentists in the capacity of the USSR to defend us in all contingencies is dangerously superficial.

INDEPENDENT DETERRENT

The need for an independent deterrent has been established. But what would be the economic impact of a crash nuclear weapons pro-gramme ? Those who advocate the weapon programme on strategic grounds very often tend to underestimate the economic factors involved. The Indian Atomic Energy Commission's budget is in the region of 100 million dollars a year. The United Nations Secretary-General's report of 1968 estimated the cost of a moderate programme with 100 Nagasaki-

sized bombs yearly at 2 million dollars per warhead. This may seem an exaggerated figure for the Indian project since we already have a number of reactors commissioned. Evidently we are in a position to afford the warheads.

But the fabrication of a nuclear weapon alone cannot confer on a nation a credible deterrent nuclear posture. A nation must have a delivery system invulnerable to enemy pre-emptive strike, in adequate measure to cause unacceptable damage to the adversary after absorbing an initial attack and an effective command and control system to wield that capability operationally. The French are implementing a programme at the cost of 10 billion dollars. In our case it may be more because development costs in a developing country are higher than in advanced industrial countries. A crash programme of weapon development would mean our spending 10 to 15 billion dollars spread over 10 years. This would entail spending approximately 6 percent of our GNP on defence, as against the present expenditure of approximately 3 percent. This steep rise in defence spending may not be possible for sometime to come in view of our present economic conditions.

On the other hand India does not need to possess the big Bomb or a complex delivery system for some time to come. All she needs is tactical nuclear weapons capable of being delivered by long-range bombers. This should be her independent minimum deterrent. This sub-stage is something we are in need of at present and are capable of affording.

THE CHOICE

We have seen that the present policy is not in the best interests of national security. It is also evident that total dependence on the USSR will be hopelessly insufficient. It will leave dangerous gaps in our defence against many real contigencies which the Chinese are likely to create. We also know that we cannot, at present, afford a totally independent nuclear capability—both, strategic as well as tactical. Then where lies the answer to our problem of security ?

One possible solution is that either the USSR, or preferably both the USA and the USSR, should provide us with strategic long-range cover while we provide tactical short-range capability on the Chinese side. It will be difficult to persuade the Super Powers to see this point of view in as much as this policy will be against the Nuclear Non-Proliferation Treaty. But they must be made to realize that their support cannot be very effective in every contingency. They must be persuaded to carry the burden of strategic nuclear deterrance and strategic naval and air deterrance. The responsibility of short-range atomic warfare on land and in the air must be regionalised as soon as possible. This division of

labour is in the interests of the Super Powers as well as India. It will complete the structure of defence in Asia without placing an excessive burden on any country and without linking total escalation with every limited engagement.

CONCLUSION

Now that the situation in Europe has stabilized Asia is likely to be the hub of political activity for the next about fifteen years. In the new emerging power equation strong region power centres are likely to play an important role. In South-East Asia the most dominating power would be China unless India develops nuclear capability to balance her. China has acquired a considerable nuclear capacity and it is likely that she can deploy tactical nuclear weapons in the field. She poses a threat to India in the form of subversion, guerilla warfare, nuclear diplomacy, and limited attacks using tactical nuclear weapons.

The present decision of not going nuclear is not in the best interests of national security as it does not cater for balancing China's power. Although India has signed a treaty of Peace, Friendship and cooperation with the USSR it may not be possible for the Russians to come to her rescue in every contingency. Thus there is a need for an independent deterrent.

India cannot afford a crash nuclear weapons programme and totally independent strategic and nuclear capability at present. She should therefore acquire some independent nuclear capability to match Chinese tactical nuclear weapons and have a small stockpile and delivery system. Her strategic needs should be looked after by the USSR, or preferably by both the Super Powers. This limited capability will establish a regional diplomatic and tactical balance. It will insure India against blackmail and give her a genuine right to participate in all deliberations of the nuclear powers effecting her security.

LIMITED ASSET AIRMOBILITY FOR THE REORGANIZED INFANTRY DIVISION

RAVI RIKHYE

THE profligacy of the United States Army in its use of helicopters in Vietnam has obscured for India the possibilities available with a much smaller number of aircraft. At one stage the US Army operated over 400 rotorcraft for each infantry division in Vietnam, though only two—the Ist Cavalry and 10lst Airborne—were officially listed as airmobile divisions. Of course, the helicopters were used also to support the South Vietnamese Army. Nonetheless, by any standard, this is an immense number of machines. Though the use of helicopters on such a massive scale is still the source of controversy in many quarters, this controversy need not concern us here. Sufficient to say that no one doubts the utility of the helicopter in any intensity war. Giving a true three-dimensional capability to the ground force, it opens up endless tactical combinations in infantry and artillery employments.

In India, as with almost every facet of our national effort, money restricts the number of helicopters which can be purchased. Yet, even a modest number will greatly enhance the combat capability of our infantry and mountain divisions. It is by now commonly accepted we cannot expect an increase in the number of infantry divisions ; as such we must do more with those we already have. The exact makeup of an optimum limited asset helicopter force can be determined only by extensive study and experiment. The broad outlines, however, can be suggested in a short paper like this. The paper is limited to what is possible at divisional level : the possibilities at corps and army level are here ignored.

Should we not; in view of money limitations, concentrate our helicopters at corps or higher headquarters, instead of dispersing them at divisional level ? This is possible in Israel or Europe : in India the huge frontages which have to be covered preclude an efficient use of centralized helicopters. Additionally, centralization is best for medium and heavy lift machines ; for light and utility machines division level assignment is more convenient. As we shall see, there are more than sufficient tasks at division to keep the small force we are suggesting fully occupied.

Three types of helicopters are needed, two of which we already produce—the SA 315 B (Cheetah) and SA 316 (Alouette 3). We would use

the Cheetah in a gunship/reconnaissance role ; the airframe would have to be modified for two pilots only, and for various ordnance loads such as a 20mm cannon with 500 rounds, and 6 HOT ATGMs in two triple packs. We can refer to this modification as the SA 320. The SA 316 carries 6 persons in addition to a pilot, and can carry 750 kg as a maximum load. The third type, which we can refer to as the SA 335, will have to be developed for us for Aerospatiale. This will take two years, large-scale manufacture in India will take another two.

Our SA 335 will have two Artouste 3A engines (the same engine we manufacture for the 315B and 316) for a total shaft horsepower of 1750, derated to 1100 hp. It will carry I4 troops or a 2 ton external slung load, and will be in the same class as the Bell Model 205A.

Consider the following aviation battalion :

HQ and HQ Company with 1 SA 316 and 1 SA 335
One utilitylight company of two platoons each with 5 SA 316
One reconnais-sance/gunship company with 2 platoons of 5 SA320 each and 1 SA 316 and 1 SA 335 in the HQ
Two utility lift companies, each with2 platoons of 5 SA 335 each.

This is a total of 44 helicopters, 4 of which are used for administration, operation, and maintenance of the aviation battalion. The breakdown is : 22 SA 335, 12 SA 316, and 10 SA 320.

THE COST

An SA 316 costs Rs. 25 lakhs with 50% spares. An SA 315 B costs around 20 lakhs with 50% spares, so we may assume our SA 320 will cost Rs. 25 lakhs. The SA 335 should not cost more than Rs. 45 lakhs with 50% spares. To keep the helicopters in the battalion at 100% availability and to allow for attrition, 50% more have to be procured, which is to say 66 for each division. This will mean 10% availability with one unit in attrition reserve. This may seem like a low attrition figure, but it needs recalling that in 9 out of 10 crashes for helicopters the helicopter is returned to service. This means we have basically allowed for one crash a year per helicopter, which anyone will concede is ample ! The whole force will therefore cost Rs. 23.20 crores. Allowing for special equipment we can assume a cost of Rs. 25 crores, which is sufficient for operations over a 10-year period.

Operating cost will be around Rs. 7 crores over a ten-year period for fuel, and perhaps Rs. 1 crore for ordnance for the gunship company. The fuel figure is computed taking 750 hours of flying per helicopter in the battalion per year. This allows two crews 300 hours each, and a reserve crew 150 hours. The Artouste 3B has a specific fuel consumption of 0.723 pounds/hour/shp. The engine is derated to 550 shp, so even

assuming a great deal of hot-weather/high-altitude operation, we may assume 400 shp as an average output. This means 289 pounds of fuel per flying hour ; at Rs. 1 a liter and 2 pounds per litre this adds up to Rs. 145 per hour. Allowing Rs. 5 for oil, we get a round figure of Rs. 150 per hour. The SA 335 having two Artouste engines, will cost Rs. 300 per hour to operate.

Thus the total 10-year operations, maintenance, and equipment cost will be Rs. 32 crores plus a sum for manpower, vehicles, infrastructure, etc. This sum will come from reductions in the ASC battalion, and is not discussed here for simplicity.

Let us examine the capabilities of the aviation battalion. Because a Pakistan-front war is likely to be short even if we are faced with a two-front war, we can borrow platoons from mountain divisions to boost the plains divisions; after the successful conclusion of a Pakistan-front war, platoons from the infantry and armoured divisions can be transferred to the mountains. To allow for this sort of switching, aviation battalions will train with both infantry and mountain divisions.

A 316 and a 335 have been provided in the HQ and HQ Company of the battalion. The 316 is to allow the battalion commander to keep in touch with his units, which will be operating over several hundred square miles. The 335 is for field maintenance and to lift damaged helicopters.

The two light utility platoons will be used for command and control for the divisional staff and the occasional sortie for brigade, and for divisional artillery observation. The helicopters will generally be divided 2-8 or 3-7 between C and C and artillery observation. A high-priority for the early 1980s, when hopefully more funds will be available to the army, is for the addition of a third platoon.

The gunship/reconnaissance squadron will be used for armed reconnaissance. The 316 is for use by the company staff, the 335 for maintenance and recovery. The two platoons will generally take turn in the air, and can operate in detachments of 2 and 3 each. For various reasons armed reconnaissance cannot be done by one helicopter operating alone. A third platoon will be added whenever money is available: this will be perhaps the highest priority for the aviation battalion. (If the reorganized infantry division is to have a separate reconnaissance regiment, the gunships will operate as an integral squadron of this formation.)

The utility lift platoons will be used for lifting troops and supplies. Artillery batteries will also be lifted. For short periods, say 15-20 days, helicopters can be operated for 10 hours a day (remember, we have 2

crews per helicopter with a third reserve crew); in a longer war, because of maintenance requirements probably no more than 6 hours will be available. Below are some combinations which can be achieved on a 10-hour per day basis. The combinations are calculated using a 110 mph economical cruising speed for troop carrying and a 75 mph economical cruise for external load.

BLOCKING FORCES

1. *Mobile attack in the plains.* This calls for insertion of company—sized blocking forces to cut enemy communications and prevent his escape. Artillery support is needed for this operation which may be spread out over a 200 square mile area. Normal divisional supplies will also have to be moved. Assume an average lift of 12½ miles; assume attachment of two SA 335 platoons from a mountain division. Then :

7 SA 335 flying 15 sorties a day lift 150 tons of division supplies and 60 tons of equipment for the artillery ;

3 SA 335 flying 15 sorties a day lift 3 firing batteries and enable them to change their position once;

20 SA 335 flying 20 sorties a day lift 16 rifle companies and weapon platoons and shift their position once.

2. *Mobile defence in the mountain.* Assume the bulk of the action is spread out over 600 square miles. Assume an attachment of 6 SA 335 platoons from infantry divisions. Assume a long war situation (5 hours a day helicopter flying), therefore also attach 2 SA 316 platoons and 3 SA 320 platoons. (96 helicopters including 6 support helicopters). Assume an average lift of 20 miles :

Then—

10 SA 335 flying 8 sorties a day lift 160 tons of supplies;

10 SA 335 flying 8 sorties a day lift 3 firing batteries twice plus 60 tons of equipment/supplies;

30 SA 335 flying 12 sorties a day lift 16 rifle companies and weapon platoons twice.

3. *Wide-river crossing.* This is a simple ferry operation, with 5-mile lifts. In 5 hours, with two reinforcement SA 335 platoons the following can be lifted : 150 tons of division supplies; 6 firing batteries and equipment; 4800 troops.

These examples involve shuttle operations away from zones of enemy fire : normally we will stay well out range of enemy fire, otherwise these relatively high sorties rates are unattainable. Men will be dropped near the battle zone, and will walk in as they now do.

Notetheless, with a two SA 335 platoon reinforcement, we can insert two reinforced rifle companies simultaneously on an unprotected flank or to seize a communications junctions. This may seem a small force, but two companies dropped with surprise are more effective than two battalions attacking along a direct axis. And within the hour another two reinforced companies can be added.

For airmobile assault, that is to say for direct insertion into the battlefield, only 10 troops will be carried. This is because 2 pilots and 2 machinegunners will have to be carried. Two pilots are required because of the greater work-load and the need to allow for one pilot casualty ; the machinegunners (who will fire door-mounted medium machine-guns) are required for enemy fire suppression. Normally such insertions will take place under conditions of local air superiority, with at least 4 strike fighters directly overhead. The reconnaissance/gunship company will also provide additional fire support.

Contrary to popular belief, the real threat to daylight helicopter operations is not from enemy figthers but from simple anti-aircraft guns. Even shoulder-fired SAMs are not a problem because they are among the easiest of all missiles to decoy. Manoeuvres in Europe have shown that high performance fighters simply cannot attack with any efficacy low-flying helicopters. What do we do when ground anti—aircraft fire is too heavy in a particular sector ? The operations can then be conducted at night. Resupply in any case will be mostly done at night. Today all kinds of night-vision equipment is easily available, and perhaps a third or half of the helicopters can be equipped with it.

It scarcely needs to be added that though the division's general staff will have officers and men specially trained to make the best use of this limited number of helicopters, great responsibility will delve on the divisional commander. The very variety of operational options that will be open to him will be bewildering, and he will have to have a quick and flexible mind if he is to make the most of his opportunities. He will have to decide in what combination he wants to move supplies, artillery, and infantry. On one particular day he might gain greater advantage by concentrating on movement of supplies by helicopter. On another he might find it necessary to devote the greatest amount of time to shifting artillery batteries. He might decide that keeping all his helicopters together on the ground for insertion of two rifle companies at the right moment may be worth more than any other combination. His US Army counterpart seldom had such a problem, because he had on call sufficient lift to move at any time one or two brigades with all supporting troops in a single life. The divisional staff will be mainly responsible for programming helicopter movements in an optimum manner.

In finding funds for the helicopters, we will have to take into account that there are several higher priorities for the limited resources available. This is not to say that those priorities will yield greater capability than the addition of helicopters ; only to say that the aviators will be part of a new branch in army service, and their 'lobby' will be the weakest of all. By its very nature the new branch will have its most ardent enthusiasts the younger officers, who naturally enough have the least say in allocation of funds. So there will be little point to competing with other branches for funds. The proponents of the aviation battalion will have to show that the battalion can allow reduction of sufficient personnel within the division to pay for its cost. Fortunately, this is easy to do.

The three components of the combat capability equation are firepower, mobility, and intelligence. As long as none of these is endangered, there is no harm in reducing personnel in the division ; if the savings thereof can be utilized to increase these three components, the reduction becomes essential.

In estimating savings from reduction of personnel, this writer is obviously handicapped by being a civilian, because he has no access to detailed information. So the following paragraphs must be treated in a broad and general sense, more along the lines of what is possible rather than what should actually be done.

The aviation battalion will require 250 men. We assume most helicopter maintenance is done at Army level. Whenever more than first-line or limited second-line maintenance has to be done, the helicopter is moved to the army pool and a fresh one sent from the pool to the unit. This enables us to get by with a minimum of skilled technicians.

Assume an average ASC battalion has in it 1000 men : mountain and armoured divisions have more, infantry divisions have less, but the figure will serve for our limited purposes. Even under the worst conditions, the aviation battalion should be able to shuttle at least half the division's daily supplies. So we could safely make a reduction of one-third in the size of the ASC battalion, say around 350 men.

Let us assume the average Engineer regiment is 1100 men. A reduction to 800 men is conceivable : the aviation battalion makes movement of the division much easier, particularly in the mountains. Part of the savings will undoubtedly have to come from a substitution of more efficient equipment, and as such we cannot claim the reduction solely on account of the aviation battalion. Nonetheless, the savings achieved by more efficient equipment will help the division as a whole much more than if those 75-100 men were left in the Engineer regiment.

The Signal Regiment can be reduced by 100 men because of the greater ease of communications due to the helicopters.

Medical personnel in the Medical battalion and Mobile Field Hospital can be reduced by combining the two, and by eliminating 150 personnel. The helicopters (which will mostly fly empty on return missions) are available to evacuate troops direclly to corps hospitals, though in practice this will be done by higher formation helicopters returning from missions to the division. As such, we can manage with a reduced number of medical personnel, and at the same time provide much better medical care.

In the divisional artillery, in infantry divisions the light towed regiment can be safely eliminated : the added mobility provided by the aviation battalion will mean 3 field and one medium regiment will be more effective than one light, 3 field, and one medium regiment. In the mountain divisions, substantial reduction can be made in mules because of the great additional helicopter mobility. In both cases, about 600 men can be eliminated. True enough we are reducing firepower in the infantry division, but the added mobility will give us more combat capability for our artiliery.

The infantry battalion will have to be reduced by 100 men. This will be done at the same time as increasing the firepower of the rifle companies, for instance, by adding another LMG to the rifle section and by issuing M79 type grenade launchers. Thirty-six men alone can be eliminated by taking out the 2″ mortar at platoon (replaced by three M-79s, one each in the riflle squads) and MMG platoon (3 men are ample to man a light-weight FN type MMG).

The total reductions in the division will come to 2450 men. Since for every man in the division there is 0.5 outside, the army-wide reduction will come to 3674 men. Since the reconnaissance/gunship company is a totally new addition to the division it should be funded from the regular army budget. Since this company accounts for hardly Rs. 5 crores out of the Rs. 32 crores total for the aviation battalion, Rs. 75 crores for 15 divisions, spread out over 5 years, can hardly be a strain. On an average the army spends Rs. 11,000 a year per man, allowing for every expense. Let us assume Rs. 9,000 per man per year can be saved (reductions in manpower do not yield exactly proportionate reductions in expense). Then for 3675 men there will be savings of Rs. 33 crores over a 10-year period. We need Rs. 27 crores ; the additional Rs. 6 crores can go towards buying the equipment needed to allow manpower cuts in the engineer regiment and riflle battalion.

This entire analysis is extremely crude, but serves to show the aviation battalion can be funded by reductions in the size of the division.

Undoubtedly many military men will not want to see the size of the army reduced by around 150,000 men. But is there an alternative ? With the exception of China, ours is the last of the old style infantary armies. Even China has undertaken a massive programme of providing heavy equipment for its army, to reduce the discrepencies vis-a-vis the fully mechanised Soviet forces. The suggested cuts do not reduce in the slightest combat capability ; in fact, the division will benefit overall from being slimmed down to around 15,000 men. The money saved thereof will allow us to introduce a limited asset airmobility that will greatly increase combat capability. Manpower reductions are the only way we can fund more equipment. It is unrealistic within the next ten years to expect a dramatic increase in our Gross National Product that will allow us to become more equipment intensive.

How should we proceed with this programme ? Simultaneous with letting out contracts for design of the SA 335 and 320, we should put together a test brigade to see which combination of helicopters is best. Later on the brigade can be expanded to an understrength division, and permanently become a test formation for new concepts. Mi-4s can substitute for the SA 335 in tests ; armed SA 315Bs can substitute for SA 320s. After about a year one armoured, one infantry, and two mountain divisions can be given an aviation battalion, again with the Mi-4 substituting for the SA 335. The SA 320 should be available by then. This will allow large scale division exercises under all conditions ; allow the creation of a cadre of officers specialized in using helicopters ; permit time for training of the several hundred aircrew required ; and enable us to discern if the divisions can function with the cuts suggested. By the third year limited production quantities of SA 335s will be coming off the line, and formation of aviation battalions for the other divisions can begin. The SA 316 and 320 lines should be producing sufficient helicopters by then to allow conversion of 5 divisions a year. By the fourth year there will be full-scale production of the SA 335 ; by about the eighth year the army should be fully equipped with its complement of helicopters. We will be able to hold sufficient production capacity in reserve to allow for long-war losses of helicopters against China. Also in five years or so a new version of the Artouste should become avaialble ; helicopters can be retrofitted or produced with the new engine.

The programme outlined in this paper is modest and within our reach. Forty-four helicopters per division is at the level of NATO armies. We cannot go on with the old ways : it is unlikely any programme will give the over-all increase available from introducing limited asset air-mobility.

LIFE CYCLE COSTING AND EFFECTIVENESS OF NAVAL SHIPS

LIEUT. COMMANDER MADHVENDRA SINGH

INTRODUCTION

The cost of buying and maintaining a modern warship is staggering. A frigate of the Leander class may cost anywhere from Rs. 15 to 20 crores depending on where it is built and what equipment it is fitted with. The cost of running it throughout its life will be much more. With such large sums of money involved it is imperative that we get the best value for our money and that we know not only how much the ship is going to cost throughout its life but also how much it is worth to use as a fighting unit.

This article is intended to introduce the average service officer to the subject of life cycle costing and the concept of effectiveness. Strictly speaking, life cycle costing and the effectiveness of naval ships are two separate subjects and volumes can be written on both of them. However, as the two subjects are inter-related and this is an introduction and not a treatise on the subjects I have taken the liberty of combining the two under one heading.

LIFE CYCLE COSTING

EVERY warship comprises a combination of systems or sub-systems designed to perform or support designated functions appropriate to the ship's role. These functional systems include such things as :—

(a) Propulsion
(b) Above-water weapons
(c) Above-water sensors
(d) Under-water sensors and weapons
(e) Communications systems—internal and external
(f) Command and Control systems
(g) Habitability systems
(h) Protection arrangements
(j) Life support systems etc etc.

Depending on the role that the ship is expected to perform some of these systems are given priority over the others and should, therefore, have more money spent on their purchase and and upkeep than the others.

To operate these warships requires a tremendous amount of support which can be briefly divided into the following major categories :—

(a) Personnel : Manpower planning, training, accommodation ashore, administration.

(b) Spares and stores : Planning and purchasing organisation, depots, distribution vehicles and ships.

(c) Fuel : Purchasing organisation, depots, distribution vehicles, and ships.

(d) Armaments : Inspection and safety organisation, depots and distribution vehicles, planning and purchasing organisation, manufacturing organisation.

(e) Maintenance : Base repair organisations, fleet maintenance and repair units, dockyard, industry.

While the above support organisations are briefly dealt with, the important thing to note is the planning aspect, particularly in the spares, stores and armament organisations. This is all the more important in the case of the Indian Navy which depends to a very large extent on equipment manufactured abroad. This planning should cater for the entire useful life of the ship and not just for the first 5 or 10 years. It should take into account the production run of the equipment concerned. If the company or country concerned will continue manufacturing the equipment for the next 15 to 20 years there is no necessity of having a large spares holding. However, if production of the equipment is being terminated by the supplier it is imperative that adequate spares to be ordered to ensure that the equipment will continue to be servicable throughout its expected life. Otherwise for the want of a few hundred rupees worth of spares, lakhs worth of equipment may be rendered unservicable.

LIFE COSTS :

The term "Life Costs" means the total cost of acquiring, maintaining and operating a warship throughout its life. The first question therefore is ; what is the useful life of a warship ? Estimates vary fram 20 to 25 years. In actual fact, of course, there are many ships in service which were built during World War II and are now 27 to 30 years old (our own INS Delhi is now 40 years old ; and the Turks were, till recently, operating a World War I battleship). Though it is possible to continue running ships even after they are 30 years old, it is generally agreed that beyond 25 years it is no longer economical to operate them. The important factors which contribute towards the whole life costs of a warship are discussed below.

RESEARCH AND DEVELOPMENT :

It is difficult to assign R & D costs against specific ships due to the varying states of obsolescence of equipment incorporated therein. Also the R & D cost of every system, sensor etc. is separate and the company manufacturing that equipment invariably recovers its R & D costs by increasing the cost of the equipment.

In the case of the Indian Navy the R & D effort is practically nil and we pay the R & D cost to the manufacturer in the form of a slightily increased price of equipment.

SHIP DESIGN

The cost will vary depending on whother the ship has been designed for us by the Admiralty, by industry or by our own constructors department. When acquiring ships from abroad this cost is again included in the overall ship building procurement cost. However, now that warship production has begun in the country it is a factor whose cost can be accounted for separately.

SHIP BUILDING/PROCUREMENT COSTS

This accounts for about 15 to 20% of the whole life cost. It is a large sum of money and is spent over a very short period. This is a crucial phase because any mistakes made will affect the ship for the rest of its life. The chief aim should be to maximise the military capability of the warship and to minimise the "tail". The shipbuilding cost itself can be divided into the following major categories.

(a)	Hull (including installation of armament)	21%
(b)	Machinery	24%
(c)	Electrics	15%
(d)	Armament (Ex supplier)	30%
(e)	Miscellaneous costs	10%

These major categories can be further divided and subdivided till the individual cost of all the major units in each system and subsystem are calculated. The above figures are for a typical destroyer frigate. The breakdown is bonnd to vary depending on the role of a ship. To reduce overall ship building costs the following measures are recommended :—

(a) Ensure that the decision to include any equipment is made on the basis of the cost versus effectiveness it provides.

(b) Standardise designs of equipment, systems and ships. The greater the variety of weapons and equipment in the same class of ships the more expensive will the ships be.

(c) Build ships in batches with one ship builder to :—

(i) Take advantage of the ship builders learning curve and cost curve i.e. the more ships he builds the better he beeomes at building them and the cheaper they cost.

(ii) Gain the economics of scale so far as the procurement of components is concerned. (The old saying "Cheaper by the Dozen" still holds good !)

(d) Increase productivity in the ship building industry.

(e) Once the design has been finalised do not introduce changes. (Ship builders make a lot of money on changes introduced by bright young staff officers !)

(f) Rcduce the decision making, equipment procurement and actual construction time. This is very important because the longer one takes to decide which ship equipment to go in for, the costlier it becomes. Also once construction has begun the faster the ship is built the better because both the cost of labour and material rises continuously. The time factor is even more important in the case of the Indian Navy where every decision is hampered by bureaucratic delays. There is a need to stream line the equipment procurement system and a very good case for the introduction of the Project Manager concept which has proved extremely successful.

PERSONNEL COSTS :

This is the largest single factor contributing towards the whole life cost of a warship It normally amounts to between 35 to 40% of the whole life cost in Western countries. In India it will be less because of the meagre salaries paid to officers and sailors and the fact that rations for officers are not free. A figure of 35 to 40% may seem a very large amount but it must be remembered that the cost of training establishments, accommodation ashore, victualling organisation, hospitals, recreational facilities etc. have to be written off against the number of personnel serving on ships.

Manning a ship is an expensive business and we must be prepared to increase the procurement cost to get better equipment and automate facilities so that manning costs are reduced. Over-complementing ships

must be avoided at all costs because each additional man means extra expenditure.

OPERATING COSTS :

These include the cost of fuel, ammunition, consummable stores, exercises etc required to operate the ship throughout its life. This amounts to 20 to 25% of the whole life cost. To reduce operating costs the following measures are recommended :—

(a) During the design phase, make life cycle cost estimates for each ship option, study the relative merits of each and then decide which one will give the best value for money during its life.

(b) Reduce the complement to a bare minimum by using better equipment and introducing automation.

(c) Reduce shore support i.e. the ratio of men ashore to men afloat. (The argument is that if there were no ships, there would be no shore establishments, since we are operating ships shore establishments are necessary and hence the cost ef shore support must be written off against the operating cost of ships).

(d) Be willing to increase procurrement costs to achieve (b) and (c).

MODERNISATION AND REFIT COSTS :

These include the cost of long and short refits and the cost of modernisation when undertaken and vary from 20 to 25% of the whole life costs. The maintain the effectiveness of ships relative to the developing potential threat it is essential to plan a modernisation (particularly of the ships weapons and principal sensors) at about the mid-life of a ship. It is important to realise that the decision to modernize is a decision to defer spending the full cost of a new warship and it must be allowed for in the life costs and be planned for while the ship is being acquired because the spares requirement will also depend on when the modernization is planned.

To decrease these costs, increase the period between reflits so as to reduce the time in dockyard hands. Also plan for a modernization well in advance.

Leaving aside the R & D and ship design costs, typical figures for frigates are :—

	FRIGATE 'A' (Cost in Crores of Rupees)	FRIGATE 'B' (Cost in Crores of Rupees)
Shipbuilding/Procurement	11.7	23.4
Personnel	43.2	42.6
Operations	11.88	24.3
Refits and Modernization	19.62	24.12
Total	86.40	114.42

Frigate 'B' is larger than 'A' and has better weapons and sensors. During the procurement phase a good deal of money has been spent on automation and better equipment thus considerably reducing the manning costs for frigate 'B'. These figures are for ships built, operated and maintained in the West. No figures are available for ship, built are operated in India. They will undoubtly be different so far as the overall costs are concerned but the ratios will not vary much.

A life cycle costing study carried out in the UK concluded thati :—

(a) It is cost effective to design and operate worships for an interval of 4 years between refits.

(b) It is cost effective to modernise worships at mid-life.

(c) Batch building of ships reduces cost and relative obsolessence.

EFFECTIVENESS OF NAVAL SHIPS

The term "effectiveness" is conjoined of Worth, Availability and Performance. Putting it mathematically we can say that :

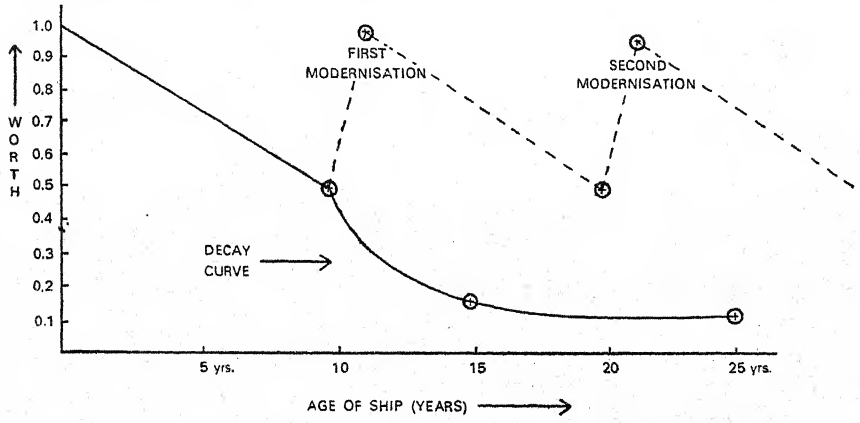
Effectiveness=Worth+Availability × Performance. So to understand what is meant by the term "Effectiveness of a ship" one must first understand the terms Worth, Availablity and Performances.

WORTH :

The worth of a ship is the military value to the nation of the *mix* of capabilities and functions represented by that ship. It is said to be unity (one) if, militarily, the ship is worth every penny spent on her i.e. she has the latest in weapons, sensors and other equipment, is well maintained and in a state of readiness thus allowing the ship to meet the projected threat she has been built for with confidence.

Each new type of ship for the Indian Navy usually incorporates some new weapon system or sensor. These are introduced to meet a projected enemy threat but the rate at which they are introduced is more a function of the economic and scientific resources available to the Indian Navy than an immediate reaction to a threat.

As a ship gets old its "Worth" continues to decrease because not only is its own equipment getting worn out and unreliable but also because the projected threat has increased. From experience it is known that the ship's hull, machinery and electrics will last for at least two generations of weapon systems. All systems increase in obsolesence with the ship's life and the moment a new system bccomes available for use in new designs/modernisations the rate of obsolesence of earlier systems become more rapid thus also decreasing "worth". This decrease in worth is shown on the graph below :



For the first 10 years of its life the worth of a ship decreases at a more or less linear rate till it reaches a value of about O. 5. If by then no modernization has taken place there is a sudden drop in worth over the next 5 years till by an age of 15 years the value of worth is about 0.15. There after the decrease in worth is more gradual. If, however, the ship is modernized and fitted with the latest weapons and sensors sometime during its life the "worth" is increased to one as shown by the dotted line and the decay curve begins again. This modernization may be done/once or twice as shown on the graph, thus keeping the worth of a ship above a certain value, in this case O. 5.

By the time our new frigates are modernized, the newly fitted weapons and sensors may perform adequately but the hull, machinary and electrlcs will be temperamental due to age. The South African Whitby class frigates have, on the other hand, been modernized a few years ago and are fitted with the latest Italian fire control systems, radars, EW and Communications systems. A fighting units their Whitby class frigates, thereioae, are worth much more than ours.

AVAILABILITY :

The term availability is self explanatory—what percentage of each year or total life of a ship is it available for service. A ship is said to have an availability of one (unity) if she is operationally available all the time. In more detail one is concerned with the relative availabilities of the various functional system and sub systems within the warship and the yearly or half=yearly availability of the ship. On an average, Western Naval ships have the following availability :—

Deployment Availability 70%
(Full life minus all periods of/Modernization, long and short refits)
Operational Availability 40%
(Full life minus all periods of / Modernization, long and short refits, training time, self maintenance and assisted maintenance periods).
Usage 30 to 40%
(Depends on the committments of the Navy concerned. The larger the committment, the larger the usage).

Ships are thus not operationally available for 60% of the time and this is approximately accounted for as follows :

Long refits and/or Modernization 15%
(Ship at some weeks notice for steam)
Short normal refits 15%
(Ship at some weeks notice for steam)
Scheduled maintenance and training 25%
(Docking, essential defects, SMPs and AMPs, training periods)
(Ship at 48 hours notice for steam or slightly more)
Emergency repairs (Notice cannot be generalized) 5%

There are various means by which the availability of ships can be increased. These "rules of thumb" are summarised below. To increase ship availability :

(a) Design for repair by replacement.

(b) Provide access for maintenance of all equipment.

(c) Quantify equipment reliability. The greater the reliability the less the maintenance/repair and hence greater the availability.

(d) Build in monitoring and test equipment in the systems.

(e) Reduce range of equipment i.e. try and standardize.

(f) Increase period between rifits.

(g) Decrease length of refits by :

(i) More intensive dockyard manning during refits.
(ii) Rigorous limitations of 'A's and 'A's.
(iii) Screening of defects.
(iv) Strict but adaptable planning.
(v) Strict dockyard production control.

(h) Dissociate dockyard emergency repair capability from refits.

PERFORMANCE :

Performance is the measure of the extent to which the ship is capable of achieving its designed or intended capability and depends on training as well as material. If it performs to the required standards its performance is said to be one.

Having understood the above three terms it is clear that a ship will be 100% effective (or have an effectiveness of 1) only if her worth, performance and availability are all equal to one. To have a whole life effectiveness of one is clearly impossible. However, it is possible for a ship to have a high effectiveness over shorter periods of time e.g. when a ship is new or just modernized. While it is easy to give a figure for availability and to a lesser extent a figure for the performance of a ship/system it is more difficult to quantify worth and and it is the quantification of worth that is engaging minds of analysts today.

COST EFFECTIVENESS :

The aim is to minimise overall costs. Minimising costs is, however, of little use if there is an overall loss in effectiveness and hence it is cost effectiveness that must be optimised.

For proper use of this techinque it is necessary that rules be established for costing and measuring effectiveness. Here again it will be relatively easy to calculate the life costs of a ship. However, effectiveness (which itself is dependent on worth) will be more difficult to quantify and will involve considerations of :

(a) The concept of relative worth.

(b) The decay assumptions with regard to the onest of obsole-sence with time.

(c) Means of improving availability.

(d) The mission set for the Indian Navy by the government and the strategic and tactical scenarios that arise therefrom.

Considerations of cost effectiveness can be used qualitatively to assess the value of such things as :

(a) Increased procurement costs to reduce maintenance costs.

(b) Capital expenditure on ship refitting facilities.

(c) Ship-borne automation to reduce complement etc. etc.

The measure of absolute or relative worth is of vital importance in distinguishing between options available to the Indian Navy whether they be fleets, squadrons, ships or systems within ships. A team of officers and scientists, therefore, needs to be formed to establish procedures for quantifynig worth. Such procedures must be capable of indicating the effect on relative worth of variations in ship and weapons characteristics.

Besides the quantification of worth this team should also be asked to :—

(a) Compile the cost of filling complement billets.

(b) Formulate a detailed procedure to calculate life costs.

CONCLUSION

The acquisitsion and running of modern warships is a mammoth task which requires a vast amount of planning and expertise. Life cycle costing and effectiveness studies are just two of the ways in which this task can be made easier and more manageable. There are many other management and analytical techniques which have been successfully used by other Navies. While I do not advocate that we ape the West in every way it would certainly be worth our while to keep abreast of development in this field and to use some of these techniques not only to help choose our weapons and ships but also to keep them running at peak performance throughout their life.

THE JAPANESE INVASION OF INDIA

LIEUT. COLONEL PAUL VARMA, *pso*

INTRODUCTION

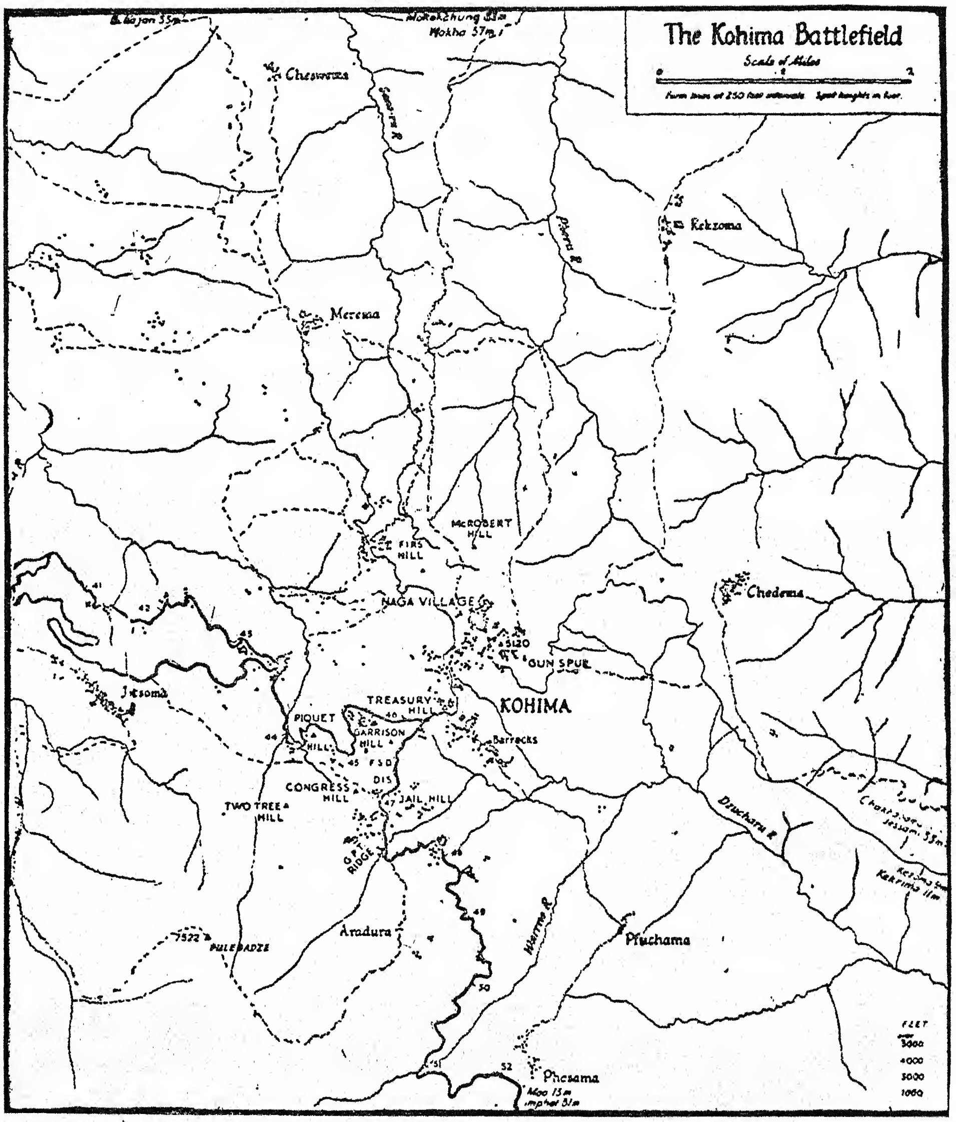
THE battles of Imphal and Kohima mark the climax of Japanese land operations during World War II. These two major land engagements were part of a single Japanese operational plan and, therefore, should be studied as a unity.[1]

Because of the mountainous topography of this remote part of the Indo-Burma frontier, Imphal and Kohima were connected by a single military umbilical cord : the narrow mountain road that began at Dimapur, a small wayside station on the Assam Railway. Dimapur is also known as Manipur Road because it is from there that the road to the former Indian principality commences. The capital of Manipur State was Imphal.[2]

From the Dimapur railhead the road to Imphal runs along the flat at about sea level for about ten miles through dense, malarious jungle to Nichugard. After passing through Nichugard, the road climbs steeply and rises 4,500 feet in 37 miles to pass through Kohima, the administrative centre of the Naga Hills tribal district. Before 1939, regular army units were not stationed anywhere in the Naga Hills. Law and order was maintained through the 3rd Assam Rifles, a para military force with its depot at Kohima. It was armed with only rifles and a few light machine-guns. Kohima, unlike Dimapur, was free of malaria.[3]

To understand the Kohima battle it is necessary to examine the topography of the area in a little detail. It can be conveniently divided into upper and lower sub-divisions on both topographical and social classifications. The upper or higher level was where the main road from Dimapur made a right angle turn to the South towards Imphal. (Refer to Map 1.) In that area, dominating the main road, above its western side, was Garrison Hill and several other minor features. These were to become the scene of bitter hand-to-hand fighting. In the same area were the Deputy Commissioner's bungalow, the inevitable British club-house and-at a decent distance—the jail. Below Garrison Hill at the point where the main road turned to the south there was a road junction from which the other road ran north past the civil government offices. It had a small branch running north-east that led up to what was known

MAP I


The Kohima Battlefield
Scale of Miles
Cheswema
Rekzoma
Merema
McROBERT HILL
FIRS HILL
NAGA VILLAGE
Chedema
GUN SPUR
KOHIMA
TREASURY HILL
PIQUET HILL
GARRISON HILL
F.S.D.
DIS
CONGRESS HILL
JAIL HILL
TWO TREE HILL
Barracks
Aradura
Pfuchama
PULEBADZE
Phesama
Dzucharu R.

as Naga Village, to distinguish it from the civil lines already described. At that time, Naga Village consisted of about 1,000 thatch and timber dwellings constructed in the distinctive style of its Angami Naga tribal population. Although located at the top of a hill, like most Naga villages,[4] *the Naga Village at Kohima did not dominate the main road or Garrison Hill nor was it dominated by either of them. The route from Naga Village to Garrison Hill was the most difficult and exposed of all approaches to the latter.* Garrison Hill was the key to the Kohima position.

The 80-mile stretch of road between Kohima and Imphal was extremely vulnerable to typical Japanese ground interdiction tactics as its alignment was parallel to Japanese deployment along the line of the Chindwin River. Kohima had an additional vulnerability : unlike Imphal and Dimapur, there was not even a light airstrip or ground suitable for constructing one.[5]

From Kohima (4,500 feet) the road runs south through lightly timbered mountains and descends to the Plain of Imphal (2,500 feet). (Refer to Map 2.) In 1944 this road was classed as all-weather but it was narrow, had many one-way sections and became blocked by landslides for up to three days at a time during the monsoon (May to October). All along this the one and only means of overland supply were gangs of civilian labourers, recruited for road construction and maintenance. They were non-combatants, totalled tens of thousands and all had to be fed, clothed and looked after under army arrangements.[6]

Imphal, some 80 miles south of Kohima, was a quiet langorous town whose easy-going Hindu and tribal population looked more Burmese or Thai than Indian. It was situated at the hub of six major routes, including the road from Kohima. XIV Army engineers were improving the track that went to the border hamlet of Tamu via Palel. 20 Indian Division was deployed forward of Tamu in contact with the Japanese approximately 80 to 100 miles south-east of Imphal. Beyond Tamu the track became unfit for second-line transport. It passed through unhealthy valleys to the Chindwin River, a major water obstacle. In 1942, Slim's beaten Burcorps had withdrawn, on foot, along this route.[7] Other XIV Army engineer units, also using large numbers of civilian labour gangs, were improving the longer track that led from Imphal to Tiddim where 17 Indian Light Division (two brigades) was in contact with the enemy.

Before examining these two land battles, several credits deserve to be noted, since without them defeat would not have been turned into victory. Equal first with XIV Army stands the air effort of Eastern Air Command under Air Marshal Sir John Baldwin. 221 Group, comman-

ded by Air Vice Marshal S.F. Vincent with its headquarters located with 4 Corps at Imphal deserves special mention as do the several additional air transport support squadrons provided at the height of the battles.[8] Without this air effort it is either certain or highly probable that Imphal would have fallen. Of course, any mention of large-scale air transport support operations is based upon the prior achievement of a favourable air situation. This had been achieved from December 1943 onwards (precise dating is problematical). By mid-1944 air superiority had definitely been achieved.[9]

Another major credit should go to the United States Army Engineers. Their contribution was more fundamental and sustained than the part played by their combat troops in Northern Combat Area Command (NCAC) in the Myitkyina area. By the end of 1943 American railway engineer units were running the Assam Railway network and had greatly increased its capacity.[10]

A third credit must go to what became known, somewhat amorphously, as the Assam Lines of Communication. This was one of the largest logistic efforts undertaken in military history.[11] It was probably the most difficult. The Assam Lines of Communication stretched from the port of Calcutta, throughout most of Bengal (East and West) and Assamincluding the Brahmaputra Valley and remote North-East Assam.

The Japanese invasion of India on the Central Front in 1944 is examined in this presentation under the following main heads :

(a) Brief review of the situation up to January 1944.
(b) Japanese operational plans for Burma in 1944.
(c) XIVth Army's defensive plan.
(d) The Japanese plan of attack.
(e) The Battle of Imphal.
(f) The Battle of Kohima :
  (i) The Japanese plan for the capture of Kohima.
  (ii) The Dimapur controversy.
  (iii) The case of Major-General J.M.L. Grover.
(g) The Japanese withdrawal.
(h) Allied pursuit.
(j) Retrospect.

BRIEF REVIEW OF THE SITUATION UP TO JANUARY 1944

The underlying grand strategy of the Japanese was to seize what they termed the 'Southern Regions'. A precise description and timetable of this plan was given to the American journalist Edgar Snow in 1937 by an obscure Chinese Communist rebel called Mao Tse-tung ! But

Snow, whose politics were suspect, was ignored. The southern regions of the Japanese Co-Prosperity Sphere included New Guinea and Burma but major attacks on India and Australia were not contemplated. The Japanese confidently expected that both India and Australia would revolt against their common imperial master.[12]

The Japanese pre-emptive air strike at Pearl Harbour and their sinking of the *Repulse* and the *Prince of Wales* off Kuantan (Malaya) conferred strategic mobility for their forces which, combined with equally brilliant tactics on land, enabled the Imperial Army to capture Malaya, the Philippines and Burma[13]. By September 1942 Japanese land forces had reached to within 40 miles of Port Moresby in New Guinea ; they had already reached the border between India and Burma at Tamu in May 1942 The initial Japanese success at sea was due to the brilliant use of aircraft-carriers by Admiral Yamamoto but through one of those unaccountable happenings that occur in warfare, most of the American carrier force was not at Pearl Harbour and escaped damage. The British aircraft-carrier *Indomitable* also escaped because her captain had run her aground off Kingston (West Indies)[14]. The maritime aircraft strike capability of the United States Navy soom forced the Japanese Imperial Navy on to the strategic defensive. Japanese sea power declined consistently after the battles of the Coral Sea and Midway (May-June 1942). One of the first effects of this decline in maritime power is seen in the inability of the Japanese to re-supply or reinforce General Horii in Papua-New Guinea. General Horii's force, held by Australian forces 40 miles from Port Moresby, was pushed back and destroyed after September 1942. The danger of a Japanese invasion of Australia receded from that time.[15]

China continued to absorb large numbers of Japanese divisions right up to the end of World War II.[16] The last land route to China was closed in 1942 (The Burma Road). It was not re-opened until January 1945, using a detour route though Assam. The United States Air-Force supplied China by air using bases set up in eastern India by United States Army Engineers for this purpose.[17]

The Indian situation was different, although Japan also lacked sea power in the Indian Ocean. After May 1942 the victorious Japanese Imperial Army was separated from British-Indian forces by a 70 to 120 mile belt of Jungle and low mountains running from the Arakan coast in the south to the junction of India, Burma and China some 1,500 miles to the north. In 1942 the only communications between eastern India and Burma was the narrow dirt track that ran north from Kalewa on the River Chindwin through the unhealthy Kabaw Valley-unhealthy because of endemic malaria and scrub typhus-to the Indo-Burma border hamlet of Tamu. From Tamu the track became more difficult to negotiate. It

passed through mountainous tribal territory resembling Papua, up and down several mountain ranges, until it reached the plain of Imphal (700 square miles at an altitude of 2,500 feet). There was a longer, more difficult route from Kalewa to Imphal via Tiddim.[18]

There was never a continuous front in Burma. Operations took place in three widely separated areas : in the Arakan in the south ; around Imphal and Kohima on the central 'front' and in NCAC between Myitkyina and the Upper Chindwin. Lateral communication between any two of these fronts was difficult and lengthy for either side-unless air transport was available.

There were many other differences between the Indian and Australian positions at that time. Most of the Indian leaders, including Mahatma Gandhi and Jawaharlal Nehru, were political prisoners.[19] Australian political leaders intervened and radically altered British strategy in early 1942. [20] The redirection of 7 Australian Division back to Australia instead of Burma is the most pertinent example. Prime Minister Curtin cabled Prime Minister Churchill saying that the evacuation of Singapore would be regarded (in Australia) as an inexcusable betrayal and that, even in an emergency, diversion of reinforcements should be to the Netherlands East Indies (Indonesia) and not to Burma.[21] In the 1920s Australia had declined to contribute to the £60 million naval base at Singapore, preferring to spend her money on new ships for the Royal Australian Navy.

Australia was solidly behind the war effort. This was not the case in India. Subhas Chandra Bose,escaped from British custody and made his way to Nazi Germany. This was not a serious embarrassment until Japan entered the war. Germany then transferred Bose to Japan by secret submarine rendezvous in the Indian Ocean (1943). Bose had more than a nuisance value. Recognized by Japan as the head of the 'Free India Movement', he soon prevailed upon the bulk of the Indian troops who were prisoners of war in Malaya to defect en bloc. They joined Boses's Indian National Army ('The INA, They were also known as Jiff's) This gave Bose, and the Japanese, two nominal divisions of Indian troops complete with weapons and officers up to company second-in-command level. There were not many Indians at that time who held King's—as opposed to Viceroy-Commissions but most of these also joined Bose. It became a 64 rupee question whether the INA would be able to spread confusion and disaffection in the Indian Army holding the Burma border British commanders had to face up to the possibility of widespread desertion. The INA divisions were ineffective in the 1944battles[22].

To make matters worse, Bose was a Bengali with a charismatic personality. Bengalis provided most of the terrorists during the Indian

independence movement. And the teeming millions of Bengal lived astride the Assam Lines of Communications.

The political background situation in eastern India immediately prior to the battles of Imphal and Kohima made Lord Casey's task as Governor of Bengal no easy one.[23]

JAPANESE OPERATTIONAL PLANS FOR BURMA IN 1944

Japanese higher defence and operational planning organization was well integrated before that country entered the war. Orders and instructions of the Supreme war Council for the conduct of integrated land/air operations were sent to the Supreme Commandars of Japanese Expeditionary Forces. The Japanese Supreme Commandar, Southern Regions, was Field Marshal Count Terauchi. He was the Commander-in-Chief of all land and air forces in the region ; later in the war naval forces were also placed under his control. Terauchi was a former Minister of the Army and member of the Supreme War Council.[24] The Allied equivalent, South East Asia Command (SEAC) was not established until August 1943 and did not become operational until November of that year[25]

The Japanese prosecuted the war through a series of top-level conferences, in the same way as the Allies. They held a Greater East Asia Conference in Tokyo in November 1943. Those present included Hideki Tojo, Prime Minister of Japan ; President Wang Ching-wei of Japanese-occupied China ; President Jose P. Laurel of the Philippines, Prince Wan Waithayakon of Thailand ; Chang Chung-hui of Manchukuo, Ba Maw of Burma and S.C. Bose of 'Free India'. Terauchi was also there in his capacity of Supreme Commander, Southern Regions, of which Burma was a part. Malaya, Indonesia, Korea, Cambodia, Laos and Viet Nam were not represented.[26]

The Japanese forces in Burma were on the outer periphery of the Greater Asia Co-Prosperity Sphere. They were fulfilling their allotted role provided they held their ground. Since overall Japanese war resources were under increasing strain after mid-1942, Burma became just as much a secondary theatre in Japanese strategy as it did in Allied. There were two 'forgotten armies'. At that time (November 1943) Prime Minister Tojo badly needed a victory to bolster his declining political power.

Understandably, Bose was the strongest advocate of a Japanese attack on India. He persuaded the Japanese to allow his two INA divisions to move into central Burma preparatory to their active participation in an attack on India. Occupation currency was printed, an Indian governor for the State of Manipur was nominated, a proclamation speech was drafted and a new flag was kept ready for unfurling in Imphal. When the capture of Imphal seemed imminent the Japanese field com-

mandar, Mutaguchi, decided that all honours would go to the Imperial Japanese Army. He ordered Bose to stand down. In the event, the rival expectations of both Mutaguchi and Bose were frustrated by the successful defence of Imphal and Kohima by XIV Army.[27]

Some Japanese generals favoured a full-scale attack on India. They argued that the poor progress made by the British during the first Arakan campaign (December 1942-March 1943) revealed continuing weaknesses in British-Indian military capability.[28] This school of thought maintained the Wingate's first Chindit operation in 1943 was additional proof that a large Japanese force could mount an offensive. The Chindits had not relied on air transport and the Japanese believed that if the British could mount about a division, then they, the Japanese, with their much lighter logistic backing could attack with an army (equivalent to our corps.). Considering the poor performance of British-Indian forces in Malaya and Burma in 1942[29] and the abortive First Arakan offensive, the argument for an attack beyond Imphal into Assam as put forward by aggressive Japanese generals, which included Mutaguchi, was a plausible one.[30]

If it was anything, the Japanese Imperial Army was bold and aggressive. Bose was confidently predicting that India would revolt, and that the Indian Army would defect to join his INA. Tojo badly needed a military success. Under these circumstances it is understandable that Tojo gave his approval at the political level for what became known as 'The March on Delhi'. Japanese believed that if British could mount about a division then they, the Japanese, radio propaganda soughth to promote general revolt throughout India. It announced the capture of successive objectives within India, according to the military operational said that but irrespective of actual gains on the ground. It has been timetable some Japanese commanders at divisional and corps levels imagined themselves riding through New Delhi astride white chargers. The fact remains that these were mere pipe dreams or political propaganda. They were never part of the operational plans issued from Tokyo.[31]

The Japanese strategic directive covering operations to be conducted in Burma during 1944 was dated 7 January 1944. It was issued by Imperial General Headquarters (Tokyo) and was addressed to the Supreme Commander, Southern Regions (Singapore). The directive instructed Field Marshal Terauchi as follows :

> "In order to defend Burma you may occupy and secure the vital areas of north-eastern India in the vicinity of Imphal by defeating the enemy in that area at the opportune time."[32]

The Japanese directive has its counterpart in the one issued to Admiral Mountbatten on 21 Octoberr 1943 which read :

"..... .....

2. Your prime duty is to engage the Japanese as closely as possible... to ... wear down the enemy's forces ... and ... to maintain... our contacts with China.

3, You will select the point of attack ... You will also prepare plans for the second phase of your campaign in 1944 contingent upon the reaction extorted from the enemy...

...."[33]

Both directives are typical of their level—Joint Chiefs of Staff/ Imperial GHQ to Theatre Commander. It would have been wrong to prescribe specific ground objectives at this strategic level.

TACTICAL OBJECTIVE

The wording of the Japanese directive shows that the operational scope was essentially defensive. The tactical objective was Imphal. Any other objective was secondary to and in consolidation of Imphal. Kohima Sylhet and Dimapur are not mentioned. Imperial GHQ, back at Tokyo, is said to have had its doubts over the feasibility of mounting the operation. Possibly the Tokyo planners recalled the fate of General Horii's force in New Guinea in September 1942 ? [34] During 1943, exploitation beyond Imphal into the Dhansiri and Brahmaputra valleys beyond Dimapur had been examined and ruled out as impractical. Japanese intelligence reported three enemy divisions around Dimapur. In reality there was not even a single battalion of infantry in that immense supply base when the Japanese advance began.[35] But the Japanese plans were based on Dimapur being strongly held.

The Japanese code name for the attack on Imphal, with Kohima as its subsidiary objective, was U-GO. It was preceded by Operation HA-GO in the Arakan. The main purpose of HA-GO was to draw off XIVth Army reserves that would otherwise be used at Imphal or Kohima. The additional resources allotted to General Kawabe, the Japanese Burma Area Army Commander, were meagre in relation to the task. Three new army head-quarters were created (a Japanese army was equivalent to our corps). Under this reorganization, Mutaguchi was appointed commander of Japanese XV Army (corps strength) and was given the task of capturing Imphal. His order of battle was three divisions, air support from 5 Air Division, and a weak regiment of tanks. The three army divisions were 31 and 33, already deployed along the Chindwin, and 15 Division. The latter was located in Thailand. Japanese troop movements at that time were so slow that only two thirds of 15 Division had concentrated at Homalin when the operation commenced. On the plus side, the carrying capacity of the Bangkok—Rangoon rail link (the Death Railway) was improving month by month despite Allied air force interdiction.[36]

At this Stage it is instructive to look at the organization of a typical Japanese division. This is shown in Chart 1. They had a triangular organization like ours but a divisional strength of 19,000. This greater strength combined with their different tactical doctrine accounts for their practice of advancing on more axis than would have been taken by British or Indian division of that time. The only exception was the Chindits who were specially trained.

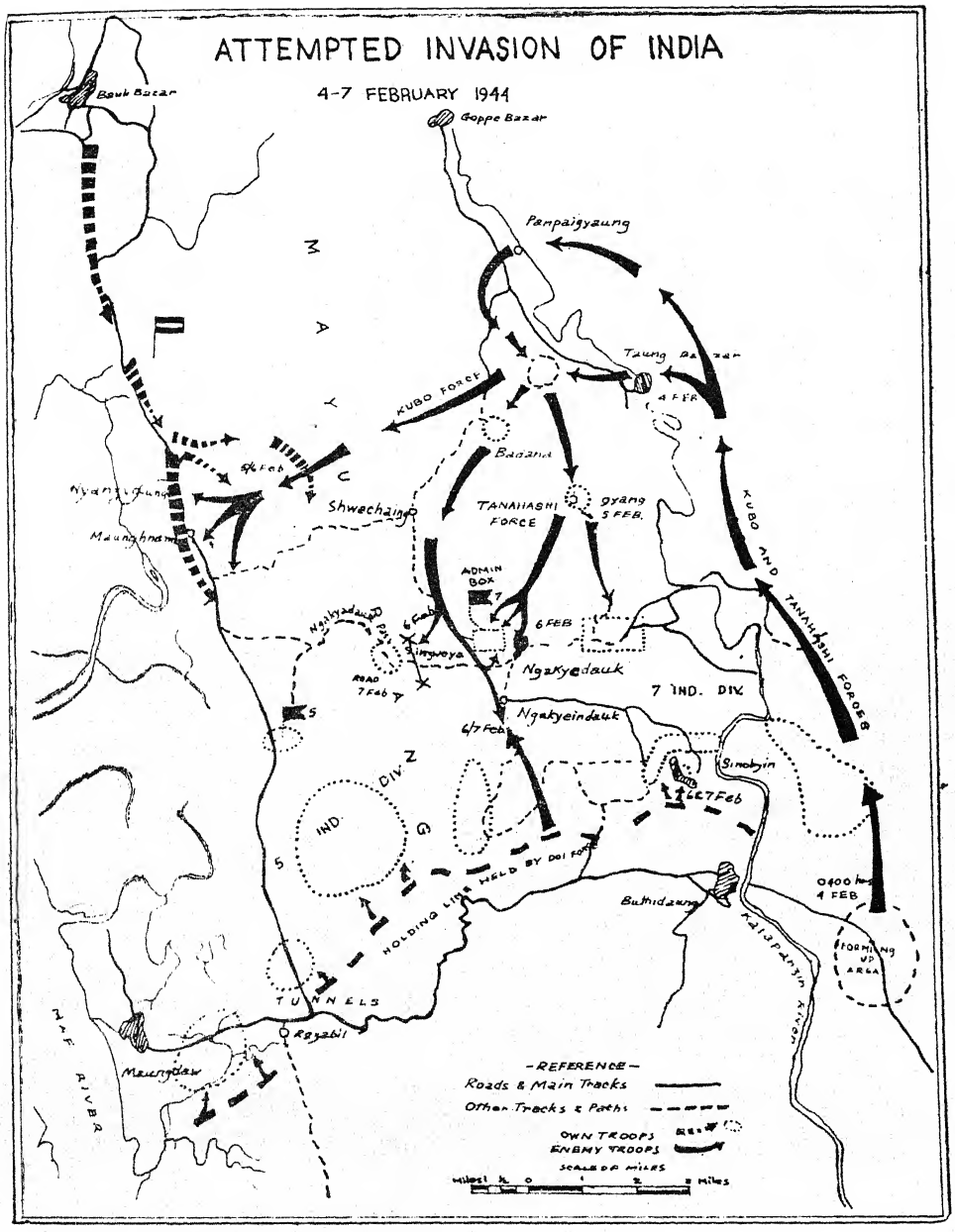
The Japanese routes of advance and successive Allied positions are shown on Map 2. In outline, Japanese 33 Division was to envelope Imphal from the south-east after cutting off and destroying 17 Indian Light Division (two brigades) deployed around Tiddim. Simultaneously, 15 Div ision less Yamamoto detachment (Major-General Yamamoto, not to be confused with the Admiral of the same name who had been killed in action by this time) was to outflank Imphal from the north and the north-east. A separate column under Yamamoto with tanks was to account for 20 Indian Division in the Tamu area. Some tanks were also allotted to 33 Division. 31 Division's task was to capture Kohima after a long cross-country advance in three main columns, and five subsidiary ones. It had no motorable route for its supply.

Administrative difficulties had been foreseen by the Japanese. They sought to overcome their problems by mustering all available pack animals, including ox carts and even tame elephants. They also collected great herds of cattle, which was one of the indications Slim had of an impending offensive. The cattle were meant to provide fresh meat on the hoof. Meat-on hoof is not as fatuous an idea as it might sound. The present-day Indian and Pakistan armies still supply fresh meat by this method to forward units in the field. Although the Japanese had carried out highly commendable reconnaissances of the terrain over which their divisions would operate they overlooked one vital, elementary factor : not even Japanese soldier cattle drovers could muster cattle over that terrain !

Although Japanese concepts of tactical air power in support of their army and navy had been brilliant, they failed to develop air supply. It was not part of their pre-war concept and even though they became aware of its successful use by the Americans flying to China from the Calcutta area, and the lesser example of rudimentary attempts to supply Australian forces along the Kokoda Trail in 1942, it remained beyond their industrial capacity to provide transport aircraft for the support of their armies in the field. This is a good example of the importance of foresight in industrial mobilisation planning prior to a war breaking out.[37]

A further general weakness of the Japanese plan was that no reserve had been earmarked at XV Army level. Divisional reserves were inade-

MAP II


ATTEMPTED INVASION OF INDIA
4-7 FEBRUARY 1944
Buthidaung
Goppe Bazar
Penpaigyaung
KUBO FORCE
TANAHASHI FORCE
Shwechaing
ADMIN BOX
Ngakyedauk
7 IND. DIV.
Ngakyeindauk
Sinabyin
HOLDING LINE HELD BY 7 IND. DIV.
TUNNELS
Rayabil
Maungdaw
NAF RIVER
REFERENCE
Roads & Main Tracks
Other Tracks & Paths
OWN TROOPS
ENEMY TROOPS
SCALE OF MILES

quate except in the case of 31 Divison, which we shall examine in some detail later. Reinforcements had been provided for at the rate of 6,000 per month.

XIVTH ARMY'S DEFENSIVE PLAN

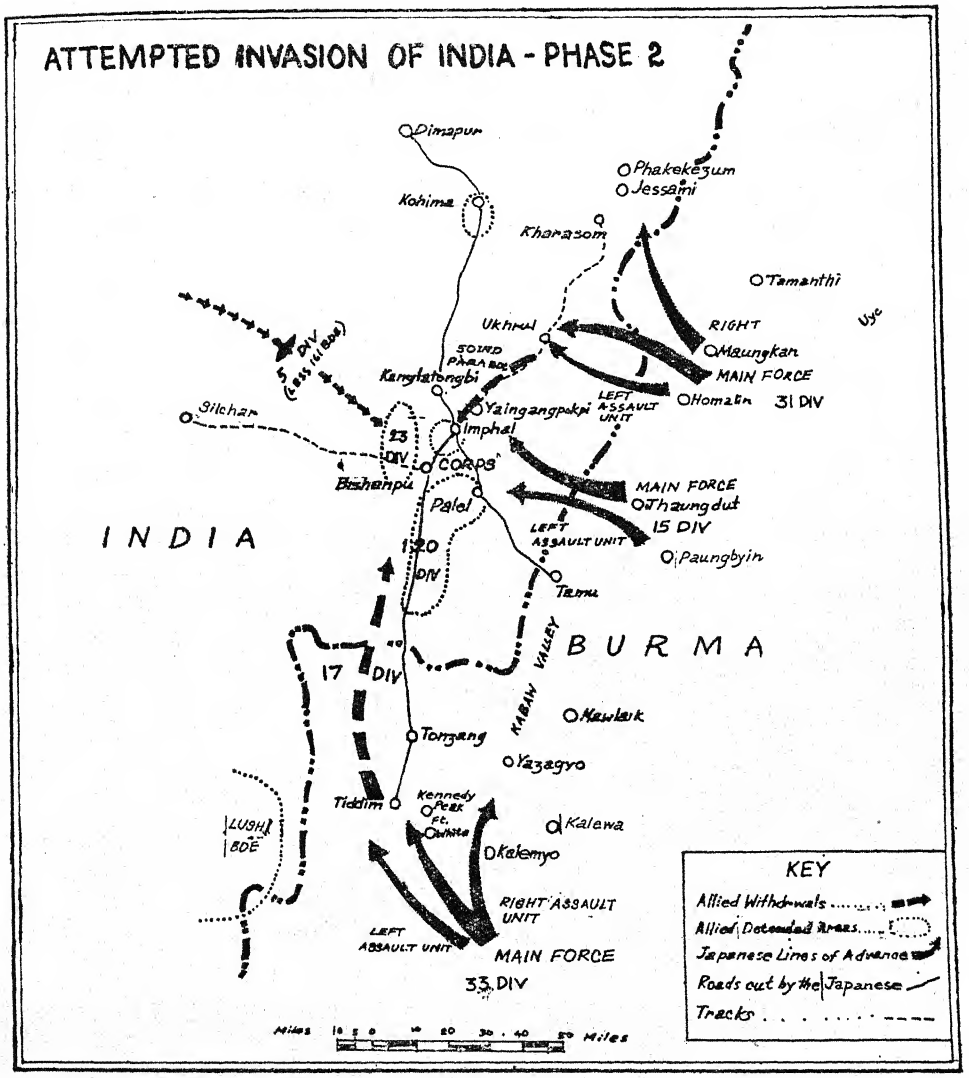
In his "Defeat into Victory," Field Marshal Sir William Slim has recorded that the Japanese achieved surprise at the tactical level on several occasions during their attack on Imphal and Kohima.[38] XIVth Army had appreciated that the earliest date that the Japanese would launch a major attack was the middle of March 1944, that is to say one week later than actually occurred. Considering that Japanese 15 Division had not completed its forward concentration when their XV Army began its advance, the British estimate was not entirely unrealistic. Slim's intelligence had been received from air reconnaissance, captured enemy documents, identifications and clandestine sources.[39]

Slim lists three courses of action, as derived from his appreciation of the situation. The first course, discarded, was to attack the Japanese across the Chindwin. At that time XIVth Army's logistic support and the state of training of reserve formations still in India were judged inadequate to sustain such an offensive.[40]

The second course, also discarded, was for 17 and 20 Indian Divisions with 23 Division in reserve to fight it out along the line of their existing positions (see Map 2). The advantage of this course was that the adverse morale effects of a withdrawal would be avoided. British-Indian forces had done nothing but withdraw since December 1941 ; the limited success in the Arakan in February 1945 was too recent to have had a deep effect on soldiers on other fronts. This course had several disadvantages. It allowed the Japanese a short line of supply over flat country east of the Chindwin. It gave them a battlefield that they knew well, and which was suited to their tactics. It would hinder the employment of both our armour and growing air support, the country south and south-east of Tamu being either very steep or thick jungle. There was an 80-mile gap between 17 and 20 Indian Divisions.[41]

The third course open, and the one adopted by Slim, was to withdraw 17 Indian Light Division to Imphal, where 23 Indian Division was already in reserve, and to pull back 20 Indian Division to the Shenam Saddle near Palel. The Shenam Saddle offered a naturally strong defensive position for a division. Thus, Slim decided to fight a concentrated battle on the Plain of Imphal in which his three divisions, his armour and air support would all be used to the best effect under the tactical command of Lieutenant-General G.A.P. Scoones commanding 4 Corps. Although this plan entailed yet another British withdrawal, it was

MAP III


ATTEMPTED INVASION OF INDIA - PHASE 2
Dimapur
Kohima
Phakekezum
Jessami
Kharasom
Tamanthi
Uye
Ukhrul
RIGHT
Maungkan
MAIN FORCE
SOUND PHASE BDE
Kangjatongbi
Yaingangpokpi
LEFT ASSAULT UNIT
Homalin
31 DIV
5 DIV (LESS 161 BDE)
Silchar
Imphal
23 DIV
COPPS
Bishenpur
Palel
MAIN FORCE
Thaungdut
15 DIV
LEFT ASSAULT UNIT
Paungbyin
INDIA
20 DIV
Tamu
BURMA
17 DIV
KABAW VALLEY
Kawlak
Tongzang
Yazagyo
Tiddim
Kennedy Peak
Ft. White
Kalewa
Kalemyo
LUSHAI BDE
RIGHT ASSAULT UNIT
LEFT ASSAULT UNIT
MAIN FORCE
33 DIV
Miles 10 5 0 10 20 30 40 50 Miles
KEY
Allied Withdrawals
Allied Defended Areas
Japanese Lines of Advance
Roads cut by the Japanese
Tracks

undoubtedly the best of the three courses that were open to XIVth Army.[42]

The timing of the withdrawal was left to the two forward divisional commanders. Slim has stated that this was one of the mistakes that he made. It can be argued, however, that this delegation was the best means of ensuring command and control in relation to the terrain, the dispersion of the two divisions and the means of communication available at that time in the Burma theatre. It failed primarily because the Japanese commenced their attacks one week earlier than had been appreciated. Ideally, there should have been a system such as that established through 21st Army Group's Y Service in the European Theatre. This type of liaison officer organization, which included high-powered radio networks, did not exist in Burma.[43]

Plan of Attack

For the Japanese, success hinged on the early capture of Imphal after a surprise attack based on speed of movement on foot. Despite their setback in the Arakan a month earlier, due to the new British tactic of supplying whole division by air, the Japanese remained confident that their outflanking tactics would prevail. One main weakness of the bold Japanese plan lay in the inability to maintain the three divisions of Mutaguchi's XV Army for more than one month. The historical sources at present available do not say whether Kawabe or Mutaguchi were aware that, two years earlier, a much smaller force commanded by General Horii had been reduced to starvation and cannibalism as it retreated along the Kokoda Trail after its supplies ran out. Another major weakness was Mutaguchi's grouping (see Chart 2 and narrative below).

Japanese 33 Division began its advance on Imphal from Kalemyo on 7 March 1944, one week earlier than Slim had expected. On 9 March 1944 a two-man Gurkha reconnaissance patrol sighted a column of 33 Division 2,000 strong but its report was disregarded. On 12 March 1944, two columns from 33 Division cut the road behind 17 Indian Light Division between milestones 100 and 109 (North of Tonzang). 17 Division did not commence its withdrawal until the afternoon of 14 March 1944. The disregarding of the two-man Gurkha reconnaissance patrol illustrates the need for specially trained units like the present-day Special Air Services : two SAS men would have been believed. One hopes that the two disregarded Gurkhas were given a well-deserved mention after the Japanese proved them to have been right ![44]

Two serious consequences followed this early Japanese success. 17 Indian Light Division had to fight its way back through a series of Japanese road-blocks. Slim describes the ground situation as resembling several layers of Neapolitan ice cream![45] A similar situation was to

dovelop later near Bishenpur at the height of the battle for Imphal. This type of confused situation hampers the use of artillery and air support, due to the difficulty of ensuring the safety of own troops. It operated to the net advantage of the Japanese who lacked support relative to our forces. The second consequence was that 4 Corps had to commit the whole of its reserve (23 Indian Division) at an early stage in the battle in order to extricate 17 Indian Light Division.

The previous task of 23 Indian Division had been to cover approaches to Imphal as far out as Ukhrul-Sangshak, 60 miles to the north-east. Ukhrul was an important tactical feature from which the Japanese could advance on either Kohima or Imphal. Ukhrul and nearby Sangshak were held by 50 Indian Parachute Brigade, which was under-strength, with under command one battalion of 23 Indian Division.

50 Indian Parachute Brigade had staged through Kohima. Its departure left Kohima with only depot and communication zone troops and a newly raised Indian battalion whose fitness for war was unproved.

50 Indian Parachute Brigade was defeated by Japanese 31 Division in the Ukhrul-Sangshak area but only after they had delayed the enemy for one crucial week (15 to 21 March 1944). The significance of this delay in relation to the defence of Kohima will be brought out later.

20 Indian Division carried out a successful withdrawal to the Shenam Saddle, near Palel, from where it conducted a successful defence in the face of repeated fierce Japanese assaults.

THE BATTLE OF IMPHAL

While 33 Japanese Division was fighting the battle with 17 Light Indian Division and 23 Indian Division south-east of Imphal, 15 Japanese Divion achieved great tactical surprise and came close to capturing Imphal from the north-east. The task of Japanese 15 Division, commanded by Lieutenant-General Yamauchi, was made easier when the commander of 31 Japanese Division's left-hand column, Major General M. Miyazaki, decided to engage 50 Indian Parachute Brigade at Ukhrul and Sangshak.

The threat to Imphal from the North East became apparent on 13 March 1944 by which time 23 Indian Division was on the move to extricate 17 light Indian Division.[46] Realising that 4 Corps was left without an adequate reserve, Slim arranged through Mountbatten to fly in the battle seasoned 5th Indian Division from the Arakan. This was achieved between 19 and 29 March 1944. The schedule of troop movements by air for the whole battle period is reproduced at Chart 3. In

order to achieve this flexibility, Mountbatten detained transport aircraft that were under inter-theatre transfer orders. His decision was upheld. The result was that battle-seasoned troops were flown out of the Arakan battle zone (15 Corps) and literally went straight into action when they landed at Imphal.

On 29 March 1944 the Japanese cut the Imphal-Kohima Road at Kanglatombi, just North of Imphal. For nearly three months 4 Corps had to be supplied entirely by air. This air supply operation, known as Operation Stamina, was one of the largest of World War II. The Imphal garrison was put on reduced ration scales, some 43,000 non-combatants (mostly civilian road gangs) were flown out in returning aircraft, as were 13,000 casualties.[47]

The most serious threat to Imphal developed on 6 April 1944 when a force from Japanese 15 Division captured the commanding Nungshigum feature which dominated the Imphal Plain, gave direct observation over the main airstrip at a range of six miles and was close to 4 Corps headquarters. After fierce fighting, during which Nungshigum changed hands several times, this vital position was finally captured in one of the many gallant actions that characterised the fighting around Imphal and Kohima. On 13 April 1944 1st Battalion, Prince of Wales' Own, the Dogra Regiment (1st Dogras) of the 5th Indian Division that had just been flown in from the Arakan, supported by the 3rd Carabiniers (Lee-Grant tanks) and a 90-minute air strike plus all available artillery support, recaptured Nungshigum. Both the leading company commanders were casualties as were five out of the six tank commanders. Several writers on the action at Nungshigum have commented that Wellington's remark at Waterloo was applicable—it was a damn close run thing.[48]

The Imphal-Kohima Road was not re-opened until 22 June 1944 when the 1st Dogras supported by 3rd Carabiniers, both of Nungshigum fame (both units bear 'Nungshigum' on their regimental colours), broke through the last Japanese road-block defences at mile 109 to meet troops from British 2 Division advancing from Kohima. Service Corps convoys went through to Imphal the same day.[49]

Mutaguchi failed to earmark a reserve at his own (Army) level. He had planned to draw on 31 Japanese Division committed at Kohima. At the height of the two battles Mutuguchi ordered Lieutenant-General Sato of 31 Japanese Division to detach part of his division to assist 15 Japanese Division. Sato failed to do so and the celebrated 'openline' slanging match ensued. Lack of a reserve, insufficient reinforcements and inadeqnate arrangements for supply in the field are the main reasons for the defeat of Mutaguchi. He failed to capture supplies in any quantity and—like General Horii's force in New Guinea, two years

earlier—the impetus of the Japanese attack eventually broke downt hrough starvation.

THE BATTLE OF KOHIMA

The role of 31 Japanese Divison and the performance of its principal opponent British 2 Division were two most contentious and interesting events during the Japanese attack on Imphal and Kohima. Both divisional commanders were removed from command.

The Battle of Kohima is well covered in professional literature. The major events of the battle were :

(a) Initial achievement of tactical surprise by the Japanese.
(b) The gallant delaying actions fought at Jessami and Kharasom (both east of Kohima) by the newly raised 1st Battalion, The Assam Regiment (1st Assam).
(c) The emergency fly-in of 161 Indian Infantry Brigade of 5th Indian Division from the Arakan to Dimapur.
(d) The confused, initial movements of Allied formations and units in the absence of an adequate command and control organization.
(e) The defence of Kohima by 4th Queen's Own, The Royal West Kents, the British battalion of 161 Indian Infantry Brigade and minor units under command of Colonel Richards.
(f) The rapid move, from all over India, of 33 Corps and its subordinate formations and the concentration of the Corps at Dimapur.
(g) The collapse of Japanese 31 Division.

In this account the following aspects are studied :

(a) The Japanese plan for the capture of Kohima.
(b) The Dimapur controversy.
(c) The removal from command of Major-General J.M.L. Grover.

The Japanese Plan for the Capture of Kohima

General Mutaguchi, Commander of XV Army during the attack on Imphal and Kohima, gave 31 Japanese Division the task of enveloping and capturing Kohima. This Division advanced in three main columns ; there were five smaller columns. The mnintenance of 31 Japanese Division posed greater problems than the other two divisions. The other two divisions each had one or more adequate, motorable roads, but Sato had no motorable road to his rear.[50]

The strength of the attack surprised Slim. He had anticipated a brigade strength attack, but a full Japanese division was used.[51]

Events justified Slim's appreciation : It was not practicable to maintain a division along the routes taken by Japanese 31 Division, not even on reduced Japanese scales. Mutaguchi's use of a division against Kohima is open to further criticism. The retention of one regimental group (equivalent to our brigade) from 31 Japanese Division as XV Army reserve might have made all the difference at Nungshigum in early April 1944. In Mutaguchi's plan 31 Japanese Division was required to give up one regimental group for the final assault on Imphal by sending it back from Kohima. Japanese signal communications, staff work and the mentality of their commanders all lacked the flexibility needed to achieve such a major switch at the height of two battles.

Lieutenant-General Kotoku Sato has been severely criticised by Slim as well as his own countrymen already. There are further grounds for doubting his generalship. The left-hand column of Japanese 31 Division was the strongest, apart from the main body. Major-General M. Miyazaki, Commander of 31st Infantry Group, moved with this column. Miyazaki decided—and this may be the price of having two ranking generals in one division ! — that his column would attack the Sangshak-Ukhrul position. This delayed Miyazaki for a week as already described. Apart from the fact that Sangshak was outside of 31 Division's boundary, this strong position should have been by-passed. At the most, one battalion group might have been detached temporarily to contain Ukhrul. It was also feasible to by-pass Jessami and Kharasom.

Closer to Kohima, further tactical errors were made. The first Japanese column to reach Kohima was the one that came via Jessami. It walked into what was known as Naga Village at 0400 hours on 4 April 1944 to find the local inhabitants still asleep—surprise had certainly been achieved. This column should have made straight for Garrison Hill, instead of Naga Village.

Another Japanese column further to the right (north) wandered deep into the Naga Hills towards Mokokchong. It hit thin air and rejoined the division in the Naga Village area. This column was wasted at a crucial time.

The envelopment of Kohima should have been achieved earlier by Sato's left-hand column. It had been delayed on account of the unnecessary engagement at Sangshak-Ukhrul already mentioned. When it reached Kohima it moved along the easier east edge of the Kohima-Imphal Road which was dominated by Garrison Hill held by the Royal West Kents and the ad hoc force placed under the command of Colonel Richards. This Japanese column then by-passed Garrison Hill, moving round the west of the positions held by the small garrison.

Despite repeated attacks by Sato's division, Garrison Hill never fell to the Japanese. It was under seige from 4 to 18 April 1944 and bitter

fighting continued around Kohima until the beginning of June 1944. The defence put up by the Royal West Kents at Kohima is a model of leadership and determination at the battalion level.[52]

The major deduction to be made from this examination of Sato's conduct of the attack on Kohima is that he failed to appreciate the ground correctly. Although the Japanese had made an extremely skilful reconnaissance of their routes up to Kohima prior to the operation—which, incidentally, was not detected by our forces—their ground and air reconnaissance capability was defective in relation to our Kohima defences. Had Sato's appreciation of ground been correct, the Jessami column would have made straight for Garrison Hill, after securing Gun Spur, instead of making for Naga Village. Garrison Hill was obscured by early morning mist. Naga Village lay astride the axis of advance of the Jessami column. Miyasaki's column ought to have secured Garrison Hill by advancing West of the main road. The self-imposed delay of that column at Sangshak gave the defenders of Garrison Hill a vital margin of time in which they organized their defence.

When things were at their worst for 31 Japanese Division, Sato asked 5 Air Division to supply him by air. This was a despairing request because the Japanese had failed to develop this form of logistic air support.

The Dimapur Controversy

On page 311 of "Defeat Into Victory" (Cassell's 1958 edition), Slim makes a severe criticism of Sato. He says that the Japanese general was stupid and unenterprising in that he failed to by-pass Kohima and make straight for Dimapur which lay undefended. There can be no doubt that Dimapur was a plum ripe for the plucking in early April 1944.

Was Sato entirely to blame? If not, how should blame be apportioned for missing this opportunity? Did Slim place himself on 'the other side of the hill' when he made his criticism? Did Slim allow for the 'fog of war'?

Looking at the situation from Sato's point of view, I suggest that Sato had done well to get as far as he did. He knew he had a supply problem. We must accept that Sato had been told to reckon with up to three British-Indian divisions around Dimapur. This was official Japanese intelligence. It is highly probable that Dimapur was excluded from Mutaguchi's terms of reference, let alone Sato's. Available sources all quote the Imperial HQ directive of 7 January 1944 addressed to Terauchi in Singapore (quoted earlier in this account) but I have not seen Kawabe's orders to Mutaguchi, nor the orders of the latter to his three divisional commanders of whom Sato was one. Further research is required here.

There are a few points that can be put forward in Sato's defence. He had been ordered to secure Kohima and this mission was incomplete until Garrison Hill was secured. He had been ordered to earmark one regimental group to assist Japanese 15 Division at Imphal ; this restricted his capability to move on Dimapur. He probably realised that Dimapur was malarious, whereas Kohima was at a more healthy elevation (4,500 feet).

In the light of the Tokyo directive (7 January 1944) addressed to Terauchi, General Kawabe, Burma Area Commander, is not to be blamed. This leaves Mutaguchi, the overall commander of the operation. From documents captured after the Japanese surrender, the official British history of the war in Burma states that during the planning exercises carried out by the Japanese in Burma during 1943, it is clear that Mutaguchi was a vocal advocate of an offensive that would penetrate as far as Golaghat in Assam, well beyond Dimapur. It is equally clear that he was over-ruled partly because Japanese intelligence had placed three British-Indian divisions in the Dimapur area. The Japanese also appreciated that the Assam Railway could be cut more easily west of Imphal at Silchar. At one stage, Slim considered concentrating 33 Corps at Silchar instead of Dimapur for the same reason.

Further research is required. It is possible that some part of Mutaguchi's stubborn mind still favoured a foray towards Dimapur. Mutaguchi was bull-headed and obstinate if he was anything. His over-allocation of his limited resources to the Kohima sector at the expense of his reserve cost him his primary objective, Imphal. Further research into the orders issued by Terauchi, Kawabe, Mutaguchi and Sato is needed to establish why no attempt was made to capture Dimapur.

The case of Maj. Gen. Grover

Kohima was recaptuted by 2 British Division under the command of General Grover. This British division had 161 Indian Infantry Brigade under its command during this operation but the laurels must clearly go to the division. The task of recapturing Kohima was more difficult than any other task allotted to other divisions during the battles of Imphal and Kohima, with the possible exception of 23 Division's operation to extricate 17 Light Indian Division. 17 Division at one stage lost most of its vehicles but the reputation of its commander was never in doubt. Scoones, commanding 4 Corps, was not censured over the failure to order a more timely withdrawal. Grover was the only major-general to be removed from command.

In July 1944, when the battle was over, Lieutenant-General Sir Montagu Stopford drove up to Kohima, called Major-General Grover

down to the roadside and informed him that it had been decided to relieve him of command of British 2 Division.

Slim does not comment on this episode and the official history also glosses over it. Like General Rowell who lost his command in New Guinea under comparable circumstances, General Grover has remained silent.

There can be no doubt that 2 British Division fought well, if clumsily. It was not organized for jungle warfare, was rushed into action and needed time to settle down. It fought its way into Kohima with steady determination over extremely difficult terrain. Some share of the credit for the high morale of the division and its gallant performance is attributable to John Grover's leadership and training ability. He deserved more magnanimous treatment.

The divisional commanders on both sides at Kohima became casualties to their own high commands. Japanese historians have already pronounced the guilt of Sato on either medical or military law grounds. There is relative silence on the case of General Grover—and interesting scope for some future historian.

The Japanese Withdrawal

In the sectors finally held around Imphal by the three divisions of 4 Corps, reinforced by part of 5 Indian Division, intense fighting continued until Mutaguchi acknowledged defeat and withdrew.

The Japanese withdrawal commenced on 9 July 1944. XV Army retired to the Chindwin using the same routes taken during their advance. Their withdrawal was conducted with skill and determination. By this time, Japanese troops were in a deplorable physical condition and the first signs of a crack in their morale became discernible.

During the battles, Mutaguchi had sacked all three of his divisional commanders plus a fourth major-general. Both he and Kimura were replaced later the same year.

The Japanese XV Army lost over 53,000 all ranks out of more than 84,000. Allied casualties during the same period were 17,587 including 4,064 lost at Kohima. (See Chart 4.)

It was the only occasion during the entire history of British rule in India that an enemy had set foot on Indian territory.

Allied Pursuit

The Japanese were given no respite. During 1942 and 1943 both sides had broken contact during the May to October monsoon period.

The availablity of anti-malarial drugs, supplied from Australia, the high morale of troops, the determination of commanders and the improved capacity of the Assam Lines of Communication all enabled XIV Army to press its advantage throughout the monsoon.

The Japanese were harried and driven back to the Chindwin. Concurrently our divisions were reinforced, relieved and rotated, equipment was replaced and roads were improved. By November 1944 the west bank of the River Chindwin was clear of enemy. On 3 December 1944, Indian Army Engineers opened the 1,154-foot floating Bailey bridge across the Chindwin at Kalewa—complete with two barrage balloons brought overland all the way from Calcutta because it was thought that the new bridge needed protection more than the huge bridge across the Hooghly (the counterpart of Sydney Harbour bridge.)[54] This was proved correct when Japanese fighters attempted unsuccessfully to destroy the Kalewa Bailey bridge a few days later. This was one of the main routes used by XIV Army when it began the reconquest of Burma in 1945.

RETROSPECT

The purpose of retrospect in historical writing is to determine trends and lessons that remain valid for the future conduct of human affairs, including the conduct of war.

The following lessons from the battles of Imphal and Kohima are still applicable to modern war :

(a) The logistic backing for offensive operations must be substantially completed beforehand. This was abundantly clear in the case of the Japanese failures during the two battles, as it had been two years earlier in New Guinea when their forces had to withdraw for identical reasons. It is equally clear that we were nearly defeated at Imphal because our logistic preparations were incomplete in relation to the size of the force required for its defence. The Japanese struck earlier than we had expected.

(b) The vital part played by air supply with a favourable air situation or, preferably, air superiority as the essential prerequisite. This was illustrated by the prolonged maintenance by air of 4 Corps from 29 March to 22 June 1944 and the earlier supply by air to 5 and 7 Indian Divisions in the Arakan in February 1944.

(c) The importance of having a unified command in a theatre of war with close army/air co-operation at field army and corps levels was a lesson we learnt from the Japanese and, before

that, from the Germans. This was an organizational technique that the Japanese had adopted before they attacked in 1941. At the height of the Imphal battle, the dilemma posed by the need to retain transport aircraft under inter-theatre transfer orders was satisfactorily resolved by Mountbatten. This might not have been the case without the supreme commander status and signal communications that became available with the establishment of SEAC in 1943.

(d) The retention of a reserve. This was the cardinal error committed by Mutaguchi, for which he paid the full price. The brilliant Japanese envelopment tactics in no way lessens the requirement for a reserve ; in some respects it makes the need for a strong and mobile reserve all the more essential. The use of air transport to fly in 5 Indian Division to Imphal and Dimapur, following the committing of 23 Indian Division is a good example of the way a tactical reserve should be promptly recreated.

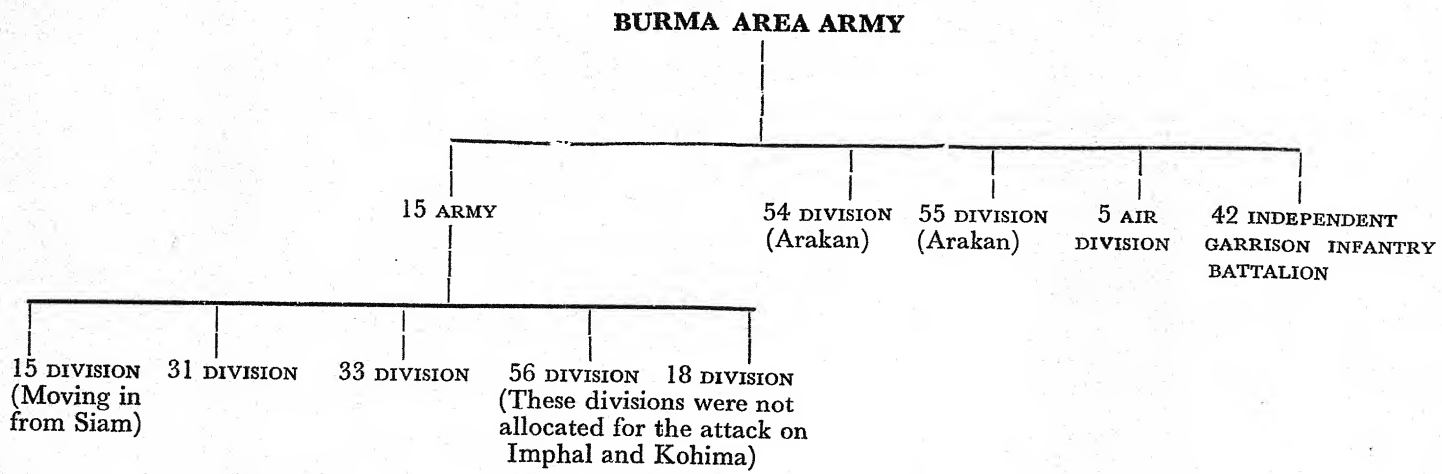
(e) The importance of training and morale. Compare the performance of 17 Indian Division in Burma in 1942 and 1944 or the general Indian Army debacle in Malaya in 1942 with its performance during the battles of Imphal and Kohima.

(f) The limitations of large special forces acting in isolation is well illustrated by the second Chindit operation (Operation Thursday). It was launched on the same day as Mutaguchi's offensive and some of its landing zones were within 100 miles of Homalin. It failed to influence Mutaguchi's plans and did not merit so much as a mention in main body of this study. Contrast this with the requirement for SAS type units for reconnaissance in jungle and mountainous country, as illustrated by the unfortunate disregarding of the two man ad hoc Gurkha reconnaissance patrol report on 9 March 1944.

CHART IA

ORDER OF BATTLE OF JAPANESE FORCES IN BURMA

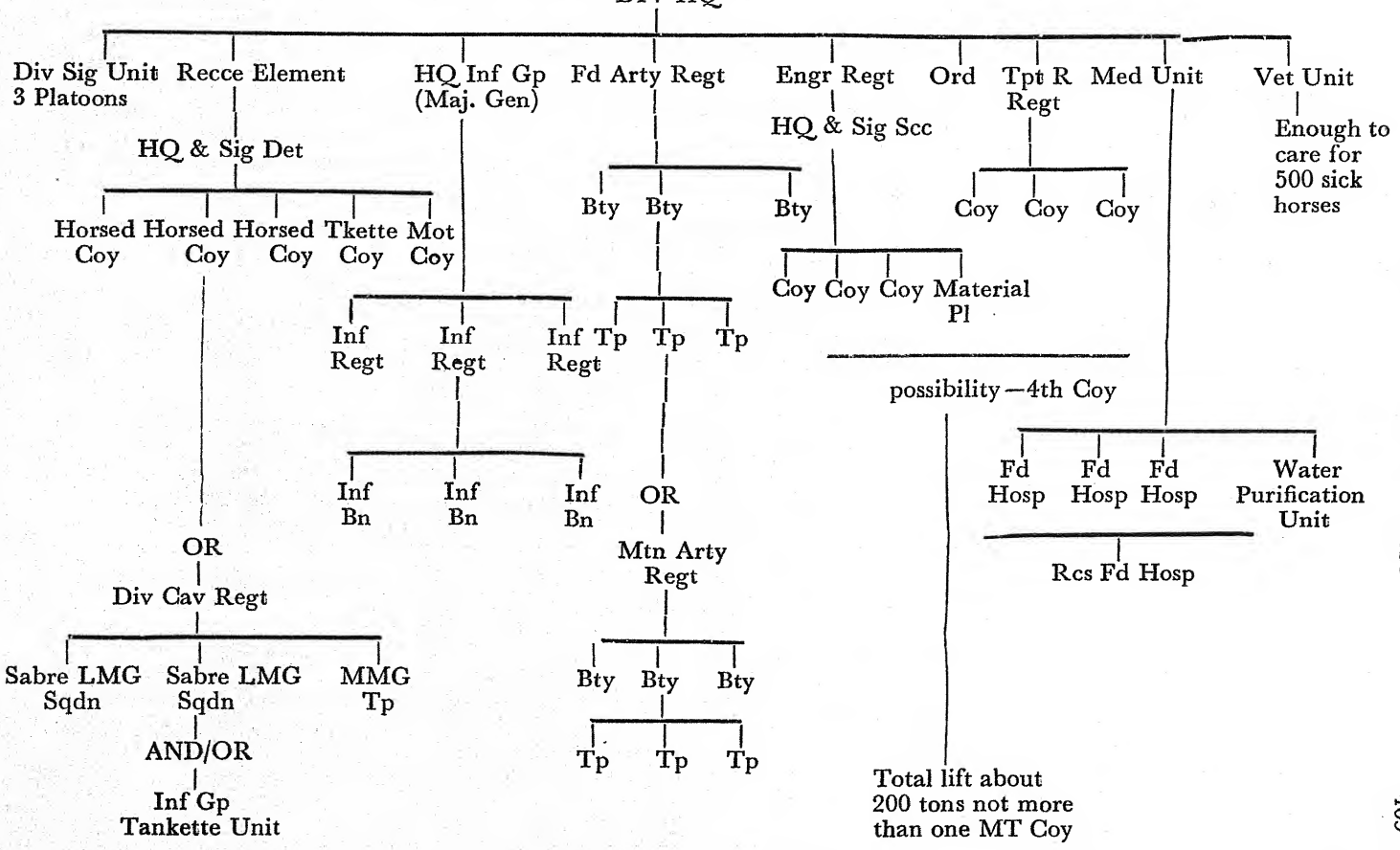
NOVEMBER, 1943



(Source : ALFSEA Report)

JAPANESE TRIANGULAR DIVISION AS USED IN BURMA, 1943 TO 1944

CHART 1B



NOTE : Divisional Commander —Lieutenant General
Commander, Infantry Group —Major General
Chief of Staff —Colonel
Total All Ranks —Approxinately 19,000

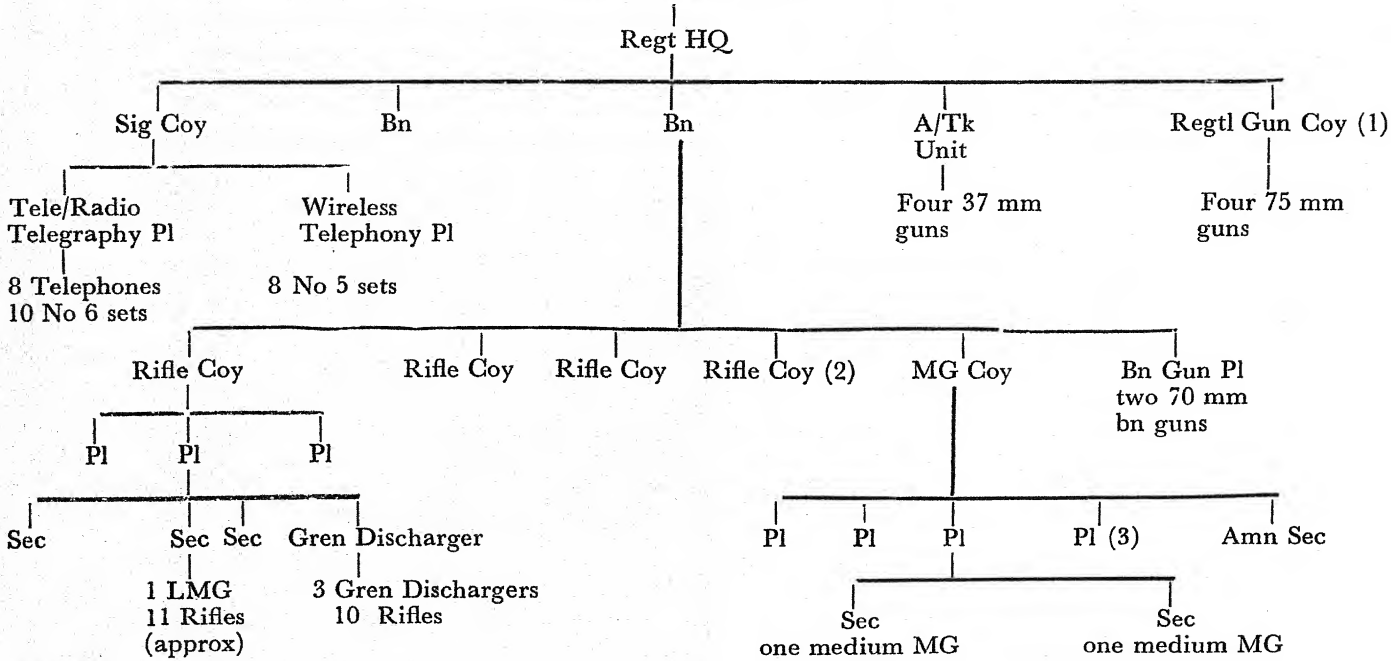
WEAPONS

75 millimetre Field or Mountain Guns		—42 Guns
70 millimetre Battalion Guns		—18 Guns
37 millimetre Anti-tank/Anti-personnel Guns		— 6 Guns
Flame Throwers (with Engineer Regt)		—12 Flame Throwers
Medium Machine Guns (with Infantry)		—72 MMG
Light Machine Guns	(with Infantry)	—
	(Engineers Regt)	—347 LMG
	(Transport Regt)	—
Grenade Dischargers	(with Infantry)	—333 Dischargers
Rifles & Carbines	(with Engineers)	— 9,920 Rifles and Carbines
Pistols		—789 Pistols

ADDITIONAL WEAPONS

		If Recce Regt Included	*If Div Cavalry Regt Included*
37 Millimetre Anti-tank/Anti-personnel Guns	—	4	—
Medium Machine Guns	—	11	4
Grenade Dischargers	—	8	32
Rifles and Carbines	—	342 Rifles	400 Carbines
Pistols	—	86 Pistols	—
Tankettes	—	7	—

JAPANESE INFANTRY REGIMENT OF JAPANESE TRIANGULAR DIVISION BURMA, NOVEMBER 1943



NOTES :

1. Where there was no Regimental Anti-tank Unit the Regimental Gun Company had two 75 millimetre guns and two 37 millimetre guns.
2. Both three and four company battalions operated in Burma.
3. Some Machine Gun Company platoons had two 20 millimetre cannon instead of machine guns.

CHART 2

COMPOSITION OF JAPANESE COLUMNS FOR THE ATTACK ON IMPHAL AND KOHIMA

31st Division (Lieutenant-General K. Sato)

Right column	III/138th Battalion One battery 31st Mountain Artillery Regiment One platoon 31st Engineer Regiment Signal and medical detachments
Centre column Advanced guard	138th Infantry Regiment (less 111/138th Battalion) I/31st Mountain Artillery Battalion (less one battery) One company 31st Engineer Regiment Signal and medical detachments (including a field hospital)
Main body (divisional reserve)	Headquarters 31st Division 124th Infantry Regiment 31st Mountain Artillery Regiment (less two battalions) 31st Engineer Regiment (less two companies) Divisional signal unit Divisional medical unit (including a field hospital) 31st Transport Regiment (less one company)
Left column	Headquarters 31st Infantry Group (Major General M. Miyazaki) 58th Infantry Regiment II/31st Mountain Artillery Battalion One company 31st Engineer Regiment Signal and medical detachments

15th Division (Lieutenant-General M. Yamauchi) (Imphal)

Advanced guard	III/67th Battalion (less two companies) Detachment 15th Englneer Regiment Regimental gun company 67th Infantry Regiment
Right column	60th Infantry Regiment (less one battalion and two companies) 21st Field Artillery Regiment (less two battalions) Two platoons 15th Engineer Regiment Half of a field hospital

Centre column	51st Infantry Regiment (less one battalion and two companies) III/21st Field Artillery Battalion Detachment 15th Engineer Regiment
Left column	I/60th Battalion (less one company) One section 21st Field Artillery Regiment Detachment 15th Engineer Regiment
Divisional reserve	Headquarters 15th Division Seven infantry companies One composite infantry company 15th Engineer Regiment (less detachments) Medical detachment Half of a field hospital
33rd Division	(Lieutenant-General G. Yanagida (Imphal)
Right column	Headquarters 33rd Infantry Group (Major General T. Yamamoto) 213th Infantry Regiment (less 1/213th Battalion) One company 1/215th Battalion 14th Tank Regiment (less one company) 1st Anti-tank Battalion (less two companies) II/33rd Mountain Artillery Battalion 3rd Heavy Field Artillery Regiment (less one battalion and one battery) II/18th Heavy Field Artillery Battalion One company 33rd Engineer Regiment
Centre column	214th Infantry Regiment (less headquarters and two companies 111/214th Battalion) I-33rd Mountain Artillery Battalion Detachment 33rd Engineer Regiment Headquarters 33rd Division
Left column	215th Infantry Regiment (less two companies) III/33rd Mountain Artillery Battalion Detachment 33rd Engineer Regiment
Reserve (Fort White) column	One company 215th Infantry Regiment One company 14th Tank Regiment 33rd Engineer Regiment (less two companies) 4th Independent Engineer Regiment 18th Heavy Field Artillery Regiment (less one battalion) Detachment 3rd Heavy Artillery Regiment
Falam-Haka Garrison	III-214th Battalion (less two companies)

CHART 3

FLY-IN OF FORMATIONS TO THE CENTRAL FRONT MARCH TO MAY 1944

Date	*Formation*	*Route*
March 19th-22nd	123rd Indian Infantry Brigade (5th Division)	Dohazari to Tulihal and Palel
March 23rd-26th	9th Indian Infantry Brigade (5th Division)	One battalion from Dohazari to Dimapur and two battalions to Palel
	Headquarter 5th Indian Division and divisional troops	Dohazari to Palel
March 26th-29th	161st Indian Infantry Brigade (5th Division)	Dohazari to Dimapur and Jorhat
March 30th	15/11th Sikhs	Agartala to Imphal
March 31st	XXXIII Corps Signals	Comilla and Amarda Road to Jorhat

By the 31st March, the transport aircraft had been ferrying troops non-stop for 12 days, and a pause for maintenance was essential. Between the 1st and 4th April, only commanders, senior staff officers and key men of XXXIII Corps were flown to Jorhat.

April 5th-9th	33rd Indian Infantry Brigade (7th Division)	Chittagong and Dohazari to Jorhat
April 10th-15th	4th Infantry Brigade (2nd Divisien)	Amarda Road to Dimapur and Jorhat
May 4th-12th	89th Indian Infantry Brigade (7th Division)	Dohazari to Imphal (Bad weather interfered with this move)

Note : A number of miscellaneous units were also flown in ; these included 50th Indian Parachute Brigade Signals, a squadron 150th RAC an army-air support control unit and RAF personnel.

CHART 4

BRITISH BATTLE CASUALTIES, NOVEMBER 1943 TO JULY 1944

This period covers the battles of north Arakan, Ngakyedauk Pass, Kohima and Imphal, and the action of the Chindits

A.	ARAKAN FRONT			
	(1) North Arakan (up to 3rd February 1944)			
	5th Indian Division	617		
	7th Indian Division	466		1,083
	(2) Ngakyedauk Pass			
	Corps troops (XV Corps)	204		
	7th Indian Division	1,579		
	5th Indian Division	993		
	26th Indian Division	612		
	36th Indian Division	118		3,506
	(3) North Arakan (March-July 1944)			
	Corps troops (XV Corps)	10		
	26th Indian Division	1,705		
	25th Indian Division	916		
	81st (WA) Division	431		
	7th Indian Division	181	(to April only)	
	36th Indian Division	119	(to May only)	3,362
			Total for Arakan	7,951
B.	CENTRAL FRONT			
	(1) Operations before the battles of Kohima and Imphal			
	17th Indian Division	604		
	20th Indian Division	316		920
	(2) Kohima			
	Corps troops (XXXIII Corps)	95		
	2nd Division	2,125		
	7th Indian Division (less 89th Brigade)	623	(from 7th May)	
	161st Indian Brigade (5th Division)	462		
	Kohima Garrison (less Royal West Kents)	401		
	23rd (LRP) Brigade	158		
	1st Assam Regiment (Jessami & Kharasom	200	(estimate)	4,064

(3) Imphal			
Corps troops (IV Corps)	677		
17th Indian Division	4,134		
20th Indian Division	2,887		
23rd Indian Division	2,494		
5th Indian Division (less 161st Indian Brigade)	1,603		
89th Indian Brigade (7th Division)	219	(from 7th May)	
50th Indian Parachute Brigade	589		12,603
		Total for Central front	17,587
C. SPECIAL FORCE (less 23rd Brigade) 14th, 16th, 77th, 111th, 3rd (WA) Brigades			3,628
		GRAND TOTAL	29,166

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12. Woodburn Kirby, op. cit., Volume I, Chapter 1 and Volume V, Chapter XXXII.
13. Woodburn Kirby, op. cit., Volume I, Chapter XXVII.
14. Ibid., Chapter IV.
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34. There is no full, published account in English of the fate of Major General Horii's force that advanced across the Owen Stanley's until halted by Australian forces, the terrain, disease and logistic breakdown in 1942.
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TECHNOLOGY AND TACTICS

MAJOR SADA RAM, ARTILLERY

Late in his life Dr ALBERT EINSTEIN was asked what weapons might be used in World War III. He said, "I do not know. But I assure you that World War IV will be fought with stones."

Quoted in Political Warfare
by John Scott, John Day, 1955.

INTRODUCTION

In the past, men specialised in making stone and metal weapons. The Bhagavat Gita provides us with examples of bows and arrows. Archimedes, the famous scientist of the 3rd Century BC, designed fortifications and many engines of war including a giant Catapult for use in the battle against the Romans.

The analytical study of military scholars like Jomini, Clausewitz, von Schlieefen, Fuller and Liddle Hart resulted in the evolution of doctrines of warfare with its methods, techniques, and procedures. Tactical doctrine has its origin in the study of the battlefield, armament resources, fire power and formations. In the limited sense, military tactics are in effect, a function of the weapons. The weapons form an essential basis of battle formations, move plan and procedures. The relationship is easier to see in the relatively simple armies of antiquity.

A man carrying a sword fought differently from one armed with a spear. To a great extent, the way each one manoeuvred and fought was implicit in the weapon he carried. It will not be wholly correct to say that tactics determines weapons. No new development is considered to be "the ultimate". Most of the current weapons and equipment are either interim substitutes or the first generation of a family of future weapons and equipment. Subsequent generations undoubtedly incorporate later technological advances. As new and improved weapons and equipment become available, the tactical concepts will necessarilry change. Tactics, however, has got no set rules. Advances in technology need to be blended with intangible forces like superior generalship, morale, training, esprit-de-corps and the determination of troops. This has been amply demonstrated by the Chinese in Korea in 1949, the Israelis in Sinai desert, the hills of Jerusalem and in Galillee. Furthermore, the war in Vietnam is an object lesson in exposing preconceived ideas regarding the effects of sophisticated weapons and equipment. Gen Giap demonstrated

to the world his superior infiltration tactics in the battle of Dien Bien Phu.

Rapid advancement in technology, resulting in complete mechanisation, long-range and destructive power of offensive and defensive weapons and accurate means to acquire the targets have added to the complexity of modern warfare.

The aim of this paper is to study the introduction of—

(a) each new major weapon system and its effects on tactics in the past, and

(b) new weapons (conventional) and equipment in our armed forces in the immediate future and their likely effects on our tactical concepts.

WEAPONS, EQUIPMENT AND TACTICS IN THE PAST

Pre-World War

IN the early period, the weapon system consisted solely of bows, arrrows and swords. To achieve maximum flexibility and concentration of weapon power, various tactical formations were evolved while on the move. Examples of this are the 'Greek Phalanx' and the 'Roman Legion'.

The next significant development that came about in the 12th Century was the English long bow. This weapon system was characterised for its light weight, easy handling, long range of 400 yards and power of penetration comparable for cross bow. The weapon, therefore, was found suitable for skirmishing or for volley fire. The concept of combination of mobility with fire power was then evolved. The effectiveness and versatility of this weapon and above tactical concept was tested on the battle of Crecy in 1346.

During the 14th Century, medieval fortification played an important role. In the meantime, gun powder was discovered. Gun powder is believed to have been developed by the Chinese as far back as 1161 and used against the Mongols. By the end of 15th Century artillery had made medieval fortifications obsolete ; during this period tactical and technical influx caused by the introduction of gun power continued. Thereby ensued a race among nations to develop artillery with longer range and greater destructive power. Along with this came into being muskets and light cavalry small arms. With the advent of these weapons the following tactical concepts were evolved :—

(a) Offensive

(i) Destruction of fortifications by seige, artillery and mining

operations. This can be illustrated by the seige of Constantinople in which massive fortifications which had defied many attacks for centuries were destroyed in a matter of only 55 days.

(ii) Flexibility to be achieved by the combination of fire power and shock action of cavalry.

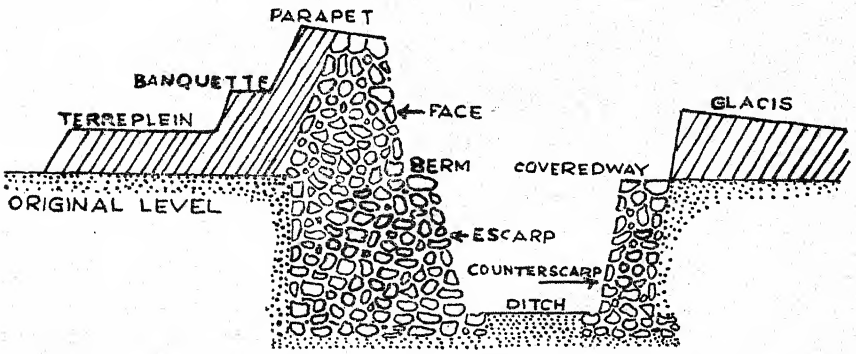
(iii) The attacker resorted to digging in and the concept of approach under the hours of darkness was evolved.

(iv) Different methods to apply cavalry, shock action and artillery fire were employed to overcome field fortification.

(b) DEFENSIVE

(i) Long-range artillery (fire power) was adopted as a means of defensive (staying) power. The French used artillery in this role in the battle of Formigny in April 1450 in which their range outmatched the long bow. Out of an army of 4500, nearly 4000 were killed by artillery defensive fire alone.

(ii) Scientific fortifications were developed which provided protection from enemy fire and enabled the defender to use his weapon effectively. The Spaniards had military supremacy in engineering and field fortifications techniques. The design given below will reveal the technological development in this sphere.



SCIENTIFIC METHODS OF FORTIFICATIONS

(1 YEAR 1500-1600)

The period of 1600 to 1900 marked the begining of modern warfare. Heavy and clumsy muskets were replaced by lighter rifles with a separate cartridge ; with the Napoleonic era (1800-1850) high trajectory

howitzers to kill enemy reserves hiding behind trees and buildings were developed. Artillery became more important than it had been in the previous three hundred years. Napoleon, at the battle of Bordino in 1812 had one gun for every 240 men. Towards the end of the 19th Century steam power became a critical consideration. Electrical telegraph and cables were developed which influenced the concept of command and control considerably.

During this period, the following tactical concepts were developed :—

(a) The genesis of modern linear tactics was evolved by Gustavus Adolphus of Sweden. Gustavus arranged his musketeers in consecutive lines. Cavalry was employed for flank protection.

(b) Frederick the Great of Prussia developed the concept of indirect artillery fire. He also devised infantry formations which were suitable to fire rifle. The increasing fire power of the infantry had reduced the cavalry to a subsidiary role—that of pursuit. This led to the concept of mobile infantry, quick concentration and oblique attacks.

(c) Wellington evolved the concept of tactical surprise to counter the effect of Napoleon's massed artillery in the battle of Waterloo. The following measures were taken :—
  (i) Positions were selected behind or beyond a rise of ground, hidden from the enemy view and fire.
  (ii) Enemy positions were attacked swiftly by surprise or with stealth using skirmishes.

(d) The armies were apread out in wide detachments and the concept of "march separately, strike together" was evolved.

(e) Field fortifications were made at an angle and zigzagged to reduce the defender's opportunity to enfilade fire.

WORLD WAR I

Fire power as it developed through the centuries had been more advantageous to the attacker. The effect of fire power now changed in favour of the defender. The developments in weapons and equipments during this period are given below :—

(a) *Machine Gun.* The machine gun was developed in the period between the Franco-Prussian war and the war of 1914—1918. It was developed by an American, called MAXIM.

(b) Field fortifications were strengthened by using barbed wire with improved design. LEE's fortifications were based on wooden breast work of sufficient height. It fulfilled two functions :—

(i) They gave shelter to the defending force ;
(ii) Physically checked the attacker at a point where defenders' fire could destory them.

(c) Light machine gun, a light air-cooled weapon that could be carried by one man, was developed in the middle of the war. This provided fire support to small infiltration parties.
(d) Artillery equipment was improved in design, in that—

(i) recoil was controlled ;
(ii) breech loading became possible as opposed to muzzle loading ;
(iii) smokeless ammunition was developed.

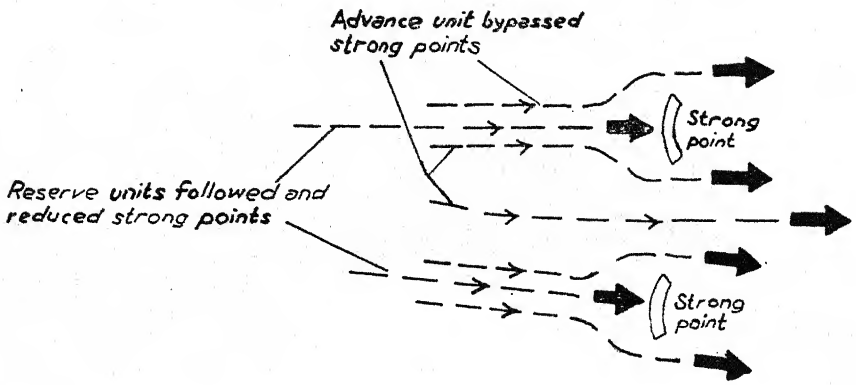
(e) Poison gas was another innovation and counter-measures reduced the gas to weapon of harassment. It was used in the battle of Ypres in May 1915.

The doctrine of mass frontal attack against fire power of machine gun and field fortifications was considered suicidal. The machine gun could lock the front and fortifications were further strengthened with barbed wire. The defence, therefore, become tactically the strongest form of war. This also ended for ever the shock value of horse cavalry.

Artillery became less effective as new type of trenches were dug and organised behind each breech. Surprise became difficult to achieve owing to forward movement of guns and carting forward large amount of artillery ammunition. The German long-range gun which bombarded Paris in 1918 from a distance of 65 Km was a psychological weapon. This amazing achievement of German ordnance technology seriously hurt tne morale of Parisians and inflicted heavy casualties.

Germany and France stressed the importance of seizing and maintaining the initiative in battle. The exponent of this doctrine was Gen Foch. Every possible effort to open a front locked by machine guns and fortifications was made. The concept of outflanking and attacking from a flank of a trench system was advocated by Schl Ieffen and applied for attack of Paris through Belgium. This came to an end when the trench system was extended from Switzerland to the sea and no open flanks existed. Techniques of infiltration were evolved and practised to a limited degree. The idea of infiltration first occurred to a French Captain. Andre Laffargue, while attacking Vimy ridge on 9 May 1915. Attacks by infiltration were supported by light machine gun fire. The idea was however, not encouraged. In Sept 1917, German General Oscar von Hutler advocated the concept of fire and move which eventually broke the trench stalemate. This method was successfully employed in the

battle of River Riga, Northern Sector or Russian front in 1917. This tactical concept is illustrated in the diagram given below.



HUTIERS OFFENSIVE TACTICS
SEPTEMBER 1917

Another major innovation of this period is the Tank. It incorporated a machine gun, ensured protection, as also mobility. Special trench crossing cribs were developed. During this period the speed of tanks was limited to 3 to 5 miles an hour (Whippet tanks). They were successfully used in the battle of Slomme in 1916 and Cambrai in 1917.

The most significant development in naval warfare was the introduction of submarine as a weapon of blockade and counter-blockade. The German U Boats offensive against merchant shipping brought Britain to her knees in 1917.

The war became three dimensional as aeroplanes were used. Initially they were used in observation and reconnaissance roles and towads the end of the war for striking behind enemy lines. Air power, therefore, became a major factor in both land and sea combat. Battles of Loos in 1915 and Somme in July 1916 clearly demonstrated the use of air power. The German bomber raid in June 1917 over London is another example.

Between World War I and II

The development of the tank brought the trench stalemate to an end. The warfare again turned in favour of an attacker. The mobility of tanks has increased five to six times of the earlier models. Mechanical transport was improved in speed and endurance. Artillery was designed to fire a heavier shell at a longer range A host of mines and booby traps were developed.

Technological innovations were made in the field of rockets, missiles and aeroplanes. The details are given below :—

(a) *Missiles.* Towards the end of World War I, the Germans produced a guided bomb, controlled by signals from an operator in the launching aircraft and also developed remote-control torpedo boats. During the same time the USA developed a remote-controlled aircraft and liquid-fuelled rockets with automatic gyroscopic missle stabilisation, capable of reaching supersonic speeds. During the period between World War I and II, the Germans mastered the techniques of rocket flights.

(b) *Air.* From 1919 to 1930, the Germans concentrated with zeal and skill on the development of commercial air transportation, sports fiying, and gliding. This technical know-how helped them to rearm their air force, when air rearmament race became a central feature of the cold war in Europe from 1935 onwards.

With the continued developments in tank and aeroplane designs, the following concepts were developed :—

(a) *Infiltration.* The idea of infiltration developed from minor tactics to grand tactics and strategy. The mobility afforded by tanks enabled a break-through with speed in the rear of the enemy, thus splitting the enemy in parts and destroying them piecemeal. The ability of artillery and infantry to move with tanks for occupation and support remained to be problematic.

(b) *Protection.* A greater reliance was laid on invisibility and armour protection.

(c) *Air Operation.* The concept of employing air force in cooperation with army was developed. In 1931, Japan employed its air force against China in support of its army and navy. In 1935, during the Abyssinian Campaign and Spanish civil war air force was used in support of the army.

World War II

During this period, the weapons were improved in design. A great deal of ingenuity was shown in their employment. Some of the developements were :—

(a) Tank designs were improved for better cross-country performance and armour protection.

(b) Tracked and other vehicles with better cross-country performance were designed.

(c) Anti-tank guns were developed.

(d) Technique of massed artillery 'fire control' was developed.

(e) Radar and sonar were developed which played an important part in acquisition targets, directing, and or aiming aircraft and guns towards unseen targets. Other electronic communication innovations brought about a vast and delicate refinement in command and control.

(f) German V1—V2 rockets which contributed to present-day missile developement came into being.

(g) The effectiveness of bomber and tropedo aircraft against surface warship became well pronounced. Carrier-based aircraft were not only supporters of surface naval forces but in fact primary striking power.

(h) Submarine warfare in both offensive and defensive operations was a highly specialised affair. The rise of submarines to evade surface blockade first attempted by the US navy during the Luzon campaign and subsequently highly developed in South-West Pacific.

(j) Air power came to stay as a decisive power after the fall of France, the only means of offensive against Germany was air offensive and this achieved decisive results. By the end of 1943, about 40% damage to the German war industry was caused by air attacks.

OFFENSIVE

(a) *Blitzkrieg.* Based on the tactics of World War I, the Germans developed the concept of combat teams. Each team possessed its own aircraft and artillery. own mechanised infantry and own engineers or pioneer units for construction and destruction of anti-tank defences. The strategic manoeuvres undertaken by them was called 'Blitzkrieg'. It is a system of weapons and tactics capable of piercing an enemy's position and destroying the enemy by encircling with speed. This tactical concept proved successful in Poland, and in the compaigns of Greece, Libya in 1941, and in the opening stages of the Russian campaign.

(b) *Infiltration.* The principle of Blitzkrieg, was dovetailed into infiltration. Besides ground forces, air-borne and para troops were employed for infiltration. Para troops were first used in in the battle of Flanders, then in the Crete followed by Chindits in Burma.

(c) The principle of alternating dispersion and concentration came into being. The Germans concentrated their armour for rolling thrusts for decisive action and again having achieved their break-through they fanned out to find the next weak point and exploit their penetration to full.

(d) Assault troops could be carried across the ocean and landed in combat-ready formations on hostile beach; naval fire power was used to support landing operations.
(e) Air power became an essential means of offensive.

DEFENSIVE.

To counter the offensive manoeuvre, the defence were organised in depth. The basis of this type of defence is holding not of consecutive lines but of islands of resistance, capable of all-round defence and capable of fighting for long periods after they have been surrounded. This concept of defence of 'strong points' proved very effective in the battle of Bialystok, when the Germans penetrated deep, leaving pockets of resistance. Each of these pockets contained up to one division and the Germans took three months to reduce them. The strong points were further strengthened by laying mines. The British used such strong points in Libya and termed them 'Jock Columns'. Ingenuity in use of weapons was shown when the Germans used 88mm anti-aircraft gun as most effective anti-tank gun.

The Germans had developed missiles, viz, surface to air, air to surface and air to air. The Azon and Razon guided bombs (air to surface missiles) were used operationally in Europe and Burma. By far the most important and far-reaching new development was the Atom Bomb. The destruction of Hiroshima and then Nagasaki showed the world that man could make weapons of destruction leading to total annihilation. This alone was a decisive factor in bringing World War II to an end in 1945.

POST WORLD WAR II

The most important strategic development was the emergence of nuclear power. Mobility was enhanced considerably. The mechnised infantry of World War II lacked in cross-country mobility, speed protection and organic communications, which was overcome. Employment of M 113 (APC) in Vietnam is an example. The tank designs were improved to achieve greater fire power both by day and night, mobility, protection, surveillance, fordability and with considerable reduction in logistical requirement. The 'Leopard' tank of West Germany and American MBT 70 are the model designs. Helicopters were developed to enhance cross-country performance of infantrymen and to provide them with combat and logistic support; together with this came the concept of sky cavalry. The Korean war necessitated the need of a lighter weapon for infantry. The American M 14 riflle came into being. Ammunition firing a species of shrapnel and a cartridge containing two bullets were developed. A host of electronic and optical improvements increased the lethal potential of an individual marksman.

Electronics influenced practically every equipment and its usage. Electronic devices increased the reliability and life of equipment, reduced the size of the equipment and increased simplicity in operating. Electronic operation has therefore assumed added importance in the field of intelligence. Some of the applications of electronics are given below :—

(a) *Radar*. The main areas of employment are :—
  (i) Early warning of approaching hostile aircraft.
  (ii) Provide guidance to own aircraft to bomb unseen targets.
  (iii) Provide guidance to missiles.
  (iv) Ground surveillance.
  (v) Fire control.
  (vi) Obtain meteorological data.

(b) *Sensors*. Sensors are associated with the families of radars and mainly used for acquisition of targets.

(c) *Computers*. Computers are being used for control of fire, solving survey problems, processing of information, pay and accounts, stockings, personnel management and coding/decoding.

(d) *Communications*. Widely used in radio, telepnone, line, radio-relay, Laser and satellite communications.

(e) *Night Viewing devices*. To cover both passive and active means.

(f) Extensively used in medicine and surgery.

Supersonic fighter bombers, interceptors, VTOL (vertical take off and landing) and STOL (short take off and landings) aircraft were developed. These planes are packed with elaborate electronic equipment to enable accurate tactical manoeuvres. With better navigational aids, command and control, acquisition and reporting system application of air power has been enhanced considerably. The Tomcat of US, a fighter/interceptor about three Mach speed, is a model design of present generation.

Naval vessels, surface and submarine, could remain at sea without replenishment for months together. Nuclear powered submarines armed with Polaris type of missiles are dominating the international waters. Carrier task force continues to be the queen of marine weapon system.

In the field of chemical and biological warfare significant developments were made in detectors, protective equipment, flames and ammunition and germ-killing gases.

Owing to the increased complexity of fire power and mobility, the emphasis on night operations have since increased. Consistent with this considerable improvements in the areas of acquiring, processing intelligence and command and control have been made. Improved means to

acquire intelligence such as optical instruments, starlight scope, ground surveillance, battlefield illumination, radar, infrared seismic, photographic devices both from land and air and sophis-ticated electronic means to intercept have come into being. The processing is done with the help of computers. Timely intelligence may enable commanders to make quick decisions and allow employment of superior combat power at the selected place even though the enemy may be superior in overall means. Similarly counter-intelligence will limit the enemy's ability to employ the means available to him to his best advantage. To control and coordinate combat means, communication has assumed greater importance. The tactical concept evolved during the Korean, Arab-Israel, Vietnam and Indo-Pak 1971 wars are given below :—

(a) Operating in small combat teams in dispersed areas and ability to concentrate quickly to give a decisive blow. Tactical mobility, in rugged terrain can only be achieved by infantry supported by helicopters and APCs. This was amply demonstrated in the Vietnam war.

(b) *Electronic Operations.* Techniques to impair or destroy communication, introduce false information, to reduce the accuracy of the enemy's electronically controlled weapons, to reduce effectiveness of his surveillance means as also protection of own electronic system pays handsome devidends. This, however, necessitates a superior technical 'know-how'. This was profitably employed by Israelis to jam Arab radar and radio communications.

(c) *Tactical Surprise.* Tactical surprise can be achieved by deception, dispersion, cover, concealment, electronic operations feints, demonstrations, ruses, displays aod raids. At times speed and audacity enables surprise. This can be well illustrated by the Israeli advance in Sinai and advance of joint Indian and Mukti Bahini forces in Bangla Desh. Tactical surprise will enhance the chances of success by misleading the enemy and causing him to react in a manner favourable to own forces. A greater reliance is now placed on tactical surprise.

(d) *Psychological Operations.* These operations comprise actions designed to influence opinions, emotions, attitudes and behaviour of the enemy in such a manner as to support accomplishment of the missions. They affect application of combat power. This also helps in getting matterial and morale support from outside countries.

(e) *Isolation of Battlefield.* By denying the enemy access to an area, one can interfere with his maintenance, logistic support and reinforcements. This will give own forces an opportunity to generate greater relative combat power at the decisive time and place. This was demonstrated in the Indo-Pak war 1971 by isolating estwhile East Pakistan now Bangla Desh, from West Pakistan, as also two successful raids by the Indian Navy on Karachi.

(f) *Offensive.* Offensive to be planned on wide fronts, by passing towns/bottlenecks and simultaneous thrusts from different directions, namely flanks, front and rear to cut enemy's nerve centre and then exploit the punch with speed. The liberation war of Bangla Desh is an example.

(g) Air power has come to stay as the major factor in determining the initial gains which could be maintained till the end of limited war. The Arab-Israeli war of 1967 and Indo-Pak conflict of 1971 are classic examples.

(h) Low level air defence techniques assumed importance due to the inability of present-day radars to detect lowflying aircraft.

FUTURE WEAPONS AND TACTICS IN OUR CONTEXT

Factors

General. The future tactics and weapon system is difficult to be percieved with clarity. This will depend on various factors. These factors, in our context, are discussed briefly in the succeeding paragraphs.

Geographical. Our borders have diversity in terrain and climatic conditions. The peculiarities will have tangible impact on equipment to be used, logistic support required and tactical concepts thereto. There is every possibility of high density deployment of strategic weapon systems in the Indian Ocean. The Indian Navy will therefore have a major role to play to maintain peace and tranquility of the Ocean.

Threat from Potential Enemy. The military threat to our country in the foreseeable future is from Pakistan and China. A combined threat from both Pakistan and China is unlikely. Nevertheless, it would be unwise to ignore the possibility. China's army is well equipped except for mechanised transport and sophisticated signal equipment. She has a large air force but the aircraft are mostly of older vintage ; her navy has yet to go under modernisation. The Pak army is equipped with sophisticated equipment. In the family of tanks it has got Pattons, T-54, T-55, T-59 and some Walker Bulldog. They have Sabre, Mirage III and

V, MIG-19, perhaps some TU-16s and F 104 types of aircraft. PAK Navy has got modern equipment. The sinking of INS Khukri is a pointer to the efficiency of the Daphne class submarines. Pakistan is deeply involved in expanding her army and building her armoury. We will do well to take congnizance of her military aid programme with Iran.

Technical Know-How. Our scientists are capable of producing modern sophisticated weapons. The R and D Organisation, however, needs further integration and reorganisation.

Economy. As today, our country spends up to 3.5% of its GNP on defence. This will have to be stepped up to 12 to 15% to equip the armed forces with weapons to match those of her adversaries. The plans, however, have to be reoriented towards achieving self-sufficiency. Present day economic constraints may not allow this increase ; in that case balance has to be achieved by placing greater reliance on treaties with friendly countries such as the Indo-Soviet treaty of 1971.

Military Strategy. In our context future wars are going to be of high intensity of four to six weeks duration with limited objectives as opposed to the Korea or Vietnam war. History has proved that a situation once brought about is not easily alterable. Both sides will therefore endeavour to achieve a position of strategic bargaining in the minimum of time. With this end in view, the country should have a dynamic policy, constantly kept under review. There is perhaps a requirement of greater politico-military coordination.

Weapons

General. The likely development in weapon system, in the near future is discussed in the succeeding paragraphs.

Armour. There is need to make Vijayanta an all-purpose tank.

Artillery

(a) *Field Gun.* There is a requirement of a field gun to achieve 20,000 metres range with a shell of 35 lbs ; this may necessitate modification to the field guns in service.

(b) *Mountain Gun.* We need to develop a mountain gun to achieve 15,000 metres with a shell of 25 lbs yet keeping the overall weight low.

(c) *Medium.* 130 MM gun (self-propelled version) will meet our requirement. The production has to be stepped up.

(d) *Heavy Gun.* A heavy gun to achieve a range of 35 to 40 Kms with a shell of 200 lbs is a definite requirement. This has to be self-propelled.

(e) *AD Guns.* A multi-barrel AD Gun will have to be developed. Low level surface-to-air missiles of Rapier, Roland or Tiger Cat type are of operational necessity. Better local warning and fire control radars will enhance the effectiveness of the guns.

(f) *Locating devices.* Family of radars to include gun/mortar locating, ground surveillance and meteorological radars have to be modernised.

Engineers. The following developments are envisaged :—

(a) Mechanical minelayer for use in plains.
(b) Detectors to locate plastic mines and mechanical mine breaching dozer.
(c) Bar type of anti-personnel mines.
(d) Suitable methods of anchoring mines in snowclad areas and shifting sand dunes of Rajasthan.
(e) Trestle-cum-span bridge and bridge amphibious mobile for use in plains.
(f) Medium (aluminium) girder bridge for use in mountains.

Signals. Complete VH-Fisation with Aren (Army engineering radio network) will meet the requirements in both plains and mountains. Till such time this system is commissioned medium power sets and radio-relay chains have to be used. Alkaline, secondary batteries will be more economical and function better in mountains.

Infantry. Small arms ammunition to be designed to fire duplex bullet. A rocket launcher with minimum range of 800 metres needs to be developed. Improved fire control accessories for firing infantry mortars will improve upon speed, accuracy and rate of fire. Formations operating in plains have to be mechanised and production of APCs will have to be accelerated.

Air Force. Our air force must increase its punch in the conventional strategic sense. The combat aircraft of MIG 21J Sukhoi 7, Supergnat ASA and HF 24 Marut class and Kiran (for use in mountains) will meet operational requirements. Helicopters with increased load-carrying capacity have to be developed. Air to surface missiles will constitute organic additional load of an aircraft. A modern bomber aircraft, a definite requirement, may have to be imported. MIG 23 fighter/inceptor with speed of 2 Mach will prove better match for Mirage—Vs. Low-level radar defence needs special attention.

Navy. Missille boats/ships would constitute an integral part of the navy. Hepter support have to be augmented/increased. INS Vikrant will have to be re-equipped with more sophisticated modern aircraft. The

Western Fleet should be augmented with Midget submarines and chariots to carry out attacks.

Tactical Concepts

Offensive. The operations will necessitate initially wide dispersion owing to large frontages. This can be best achieved by combat teams. The organisation of the teams has to be matched with the tasks. Superior tactical mobility will be a pre-requisite. In plains, tactical mobility can be achieved by tank transporters, APCs and helicopters/air transportation. In mountains, tactical mobility will mainly depend on lightly equipped infantry living on austerity scales of rations and transport. Helicopters, when available, will be of great help. The Chinese outflanking move at Sela and Bomdila in 1962 is an example to follow.

Defensive. There will be more emphasis on mibile defence whereby mobility and fire power will be exploited to destroy the enemy. The defence would consist of strongpoints guarding approaches and nodal centres. These strongpoints will be strong enough to cause considerable attrition, absorb the initial onslaught and canalise his penetration. A major portion of the force is held as a mobile reserve to attack and destroy the enemy.

Night Operations. Though a good deal of night firing/operating and ground surveillance devices have been developed hours of darkness will continue to limit application of fire power as also air power and thus help achieving tactical surprise. Night operations therefore will be a rule rather than exception.

Command and Control. The operations would demand speedy and accurate means of acquiring, processing and disseminating information and thus enabling quick decisions. In order to achieve this, a host of computers will have to be employed, notwithstanding the fact that human values and human judgement will always live above machines. Proposed area grid communications (AREN Plan) will meet our requirement of Command and Control.

Co-ordination. The operations have to be planned and executed jointly by the three services from the outset. Air force and Navy will have a major role to play. A favourable air situation has to be wrested at the outset and maintained throughout. The Navy will be required to impose complete blockade and protect our commercial ships as also launch deep raids.

CONCLUSION

During the last 30 years scientific developments have contributed considerably to the field of conventional warfare. Some of

them are given below :—

(a) Developments in the field of signal communications.
(b) Developments of radar and associated family of sensors.
(c) Night viewing and firing devices.
(d) Discovery of transistor and its use in military.
(e) Development of improved tank designs aud anti-tank weapons from time to time.
(f) Development of artillery with enhanced range, accuracy, lethality and fire control acessories.
(g) Development of mines together with means to lay and lift them.
(h) Development of missiles and anti-ballistic missiles.
(i) The jet engine and its influence within and outside the field of aeronautics.
(j) Development of sophisticated submarines/surface ships.
(k) Discovery of computers which has had far-reaching effects in many sphere of conventional warfare.

In the light of Pak massive build-up of military machinery and their hostile attitude our problems of national security are likely to acquire larger dimensions. We have to evolve an appropriate security posture, and innovative tactical concepts. It is an established fact that tactics changes from time to time and so do weapons. Weapons are now changing more rapidly than before. To a certain extent, it is possible to predict the change in weapons. It is only if we can foresee the lines along which the pattern of war is changing that we shall be able to establish a doctrine, an intergrated system of choice and design of weapons and re-training for new tactics with due regard to terrain, climate and potential threat.

We should reorganise our research and development for growth and application of science. The country should have a dynamic policy, constantly kept under review, to produce sophisticated weapons, indigenously. Our military leaders should endeavour to employ these weapons with ingenuity.

"Fighting has determined every thing appertaining to arms and equipment and these in turn modify the mode of fighting. There is, theerfore, a reciprocity of action between the two."

—KARL VON CLAUSEWITZ

ARMS AND THE MAN

LIEUT. COMMANDER KR MENON, IN

WARFARE in the twentieth century is becoming increasingly technical. That's old hat, as everyone knows. The deductions that have been drawn from this 'fact' is however open to much controversy. The armed forces of underdeveloped countries could once only look with dismay at the changing inventory of weapons available with the advanced countries knowing that they would never be able to afford the weapon systems they actually needed. But the use of these sophisticated weapons in the three major conflicts after Korea have re-emphasised two points which may be nothing new to perceptive students of military science. Firstly, some of these ultra-sophisticated weapon systems were hopelessly unreliable in actual combat and secondly, the human element still retains its lead undiminished by any advances in technology.

It is the second of these truths that this article concerns itself with. Ever since our defeat at the hands of the Chinese in 1962 there have been constant attempts to re-arm and re-equip our armed forces. This is only rightly so. Fortunately however the Henderson-Brooks report minced no words about the failure of the "human element" especially among the middle seniority group of officers. A decade has now passed and official statements, Defence Ministry comuniques and speeches by senior officers of the Defence Services harp on the same subject viz : acquisition, procurement or the construction of Armament and Defence stores and "meet the challenge of the eighties". Sadly, the subject is given paramount importance as though the lessons we have learnt in achieving higher human results in the past, have already been forgotten.

RIGOROUS TRAINING

The majority of the personnel in our armed forces fortunately come from the villages. A strict regime and occassional hardships are therefore nothing new to the Jawan or sailor. Not so with the officer cadre. Most of them come from the middle class and it would be pointless to deny that the middle class in India probably have the world's lowest standards of physical fitness, get-up and go and aggressive competitiveness. Fortunately however we inherited certain traditions

from our erstwhile masters where the officer cadets drawn from the middle class were put through a rigorous three to four years when they were hardened, made to be aggressively competitive but gentlemanly in social conduct. The result has been as everyone knows—the stablest and most competent services among the new nations of the 20th century.

But what are we doing to maintain these standards in the services ? How much have we been bitten by the "technical" bug that we have started to reallocate priorities, training time and money to technical education at the cost of all those little activities which produced a combat leader as apart from a combat technician ? The NDA and the IMA do give a rigorous grounding to officer cadets, but with the sudden expansion of the Services, not everyone has had this opportunity. Moreover, even a regular cadet entry officer can rapidly go to seed in a "slack" environment. Regrettably, this appears to be the case.

When the British left in 1947 they left behind a plethora of tennis and squash courts, equitation clubs, golf courses, swimming pools, amateur musketry ranges, sailing and canoe clubs, These activities were not merely meant for pleasure. The ethos then was that "an officer is a gentleman and a gentleman in one who engages in some form of active sports for relaxation" rather than one who lay flat on his back or went to the movies. If this philosophy is not good enough today then it can be replaced by another, but to merely criticize it, let it slide and replace it with nothing, as appears to be happening, will eventually lead to degeneration. The percentage of officers who care to play games voluntarily with the men in the evening are appreciably lesser Squash and tennis courts are conspicuously empty in many stations throughout the country. Swimming pools are considered a luxury and no one particularly seems to mind. Golf however is still fairly popular with the senior officers and consequently with some juniors whose motives in playing this game are not always above board. The net result of all this is that maximum attendance is now available in officers' clubs only for Tambola.

All these are pointers to dangerous times ahead, The military junta in Pakistan may have contributed to the Pakistani officer cadre becoming even softer, but let there not be any doubts that the Chinese serviceman is superbly fit and therefore possessed of that aggressive competitiveness and elan that comes only with high standards of mental and physical fitness. We have learnt that along the greater length of our northern borders advanced weaponry is of very little use, and that B-52's, TV guided bombs, and Puff—the magic-dragons cannot subjugate the little man in the black pyjamas.

OFF-TIME ACTIVITY

Most old-timers would agree with the gist of this article but would solemnly deny that they had anything to do with the current lax standards. Yet it is only they who can guide the younger generation or if necessary force them into the right channels of off-time activity.

As a maritime nation we have no history to speak of except for a few voyages before the year 1000. Most officers and men have never seen the sea before joining the Navy. Yet there is a growing school of thought that sailing a small boat and pitting one's wits and skill against elements has no place in a "modern" navy. The time it is suggested is better spent swotting one super-duper electronic gadgetry or perhaps playing—Tambola.

It may be argued that what we are witnessing is part of a general malaise that pervades society—but this is nonsence in the Indian context. It may be true that in the USA the average soldier now needs a private room and will not live in a barrack. But in Indian where only one in a hundred candidates can hope to become an officer, and the average Indian still lives below the poverty line, the laxness of civilian society is a patently absurd excuse for a soft officer cadre.

It is interesting here to compare the two major motivating ideologies. Socialist countries do not have standing volunteer armies, but depend on conscripts of lowpaid national servicemen to form the bulk of the services. The officers are in a permanent cadre. Their motivation is achieved by indoctrinating them with the superiority of the socialist system and the need to fight the capitalist and imperialist designs to "sub jugate the working classes". In a democratic country the attempt is to keep the services free of political ideology. In this case motivation of the officer cadre is attempted by instilling professionalism, regimental loyalties and, most important of all, high character, skill in specialization, leadership and sheer confidence in being superior to one's counterpart among the enemy.

When an officer is fresh out of the IMA or the training ship he possesses a physical and mental robustness that is not only a gift of that age but also a trait instilled by the rigours of the training programme. But as the years pass, and off-time supervision is removed and priorities have to be re-allocated to one's family house, property, relatives etc. softness begins to creep in. This presumbly is what had happened in 1962. To combat this the main effort has to or is supposed to come from the officer himself. The contention of this article is that this effort is not very apparent and will show up against a determined enemy whether on land, at sea or in the air. Our efforts seem to be diverted more than is warranted towards that popular slogan "the

weapons technology of the eighties." This is itself no evil if far more attention could only be focused on preventing the middle seniority officer from being transformed from a fit young leader into pot-bellied middle-aged man secretly cadging for desk jobs and relying on mere cunning for promotion.

HUMAN RESOURCES

The British Defence White Paper for 1973 makes refreshing reading With rising standards of living, the services are increasingly unattractive to the young man out looking for a job. Compensation with pay and other benefits can only go as far as a country can afford. A reduction in quantity, has been accepted as inevitable. To compensate for this loss in quantity, the policy makers have laid additional emphasis on what may be called "outward-bound" schemes to bolster what human material is available. This report then is the only one which devotes a paragraph to the proper harnessing of human resources, among the hundreds of paragraphs that cover everything from appropriations for nuclear submarines to setting up canteens.

It would do us no harm to borrow an additional leaf from the British book. Every system must be devised with an eye on the characteristies of the people for whom it is intended. Parhaps our climate is too hot, or our elders view active sports as a frivolous pastime or our religion does not put any premium on competitiveness or achievement. Be that as it may, an external stimulus is urgently required if our officer cadre is not to be infected with the disease of becoming horizontal immediatly after working hours or indulging only in activities worthy of an old folks home.

Senior officers will know perfectly well how this malady can be removed. No organisational changes are required and very little money. The first step is to recognise that the officer cadre is softening, and to acceptance that this is a worse evil than not having the best weapons or equipment.

DINAPUR AS SHE WAS

P. C. Roy Chaudhury

THE growing trade and commerce in Patna in the early days of the East India Company underlined the importance of a Garrison in Diuapur at a distance of six miles from Patna. The East India Company insisted that factories of 500 souls must have their own chaplains and everp ship of 500 tons travelling to India must carry a Chaplain also paid by the Company. Dinapur Garrison gave a great support to the riverine trade of the English factories at Patna. In 1773 the Company appointed a Garrison Chaplain for Dinapur Cantonment.

Old Dinapur a Social Centre

With the provision of a Chaplain, Dinapur quickly grew into a social centre. A number of the English merchants with their ladies shifted to Dinapur from Patna. The very set-up of Patna town like a long strip with scattered colonies did not much encourage social activities. Dinapur being a much smaller area, they conld live closer to each other. The Chaplain's records have an interesting old advertisement which reads :

"Mrs Middleton is prepared to open an Academy for young ladies in the healthy, airy and agreeable station of Dinapur. Subjects, writing, Arithmetic, French, Latin, plain and fancy sewing and needle work. Fees of two gold mohar (Rs. 32/-) a month for boarders and Rs. 8/- for day pupils."

Henry Martyn

Henry Martyn came to Calcutta in 1805 as a Chaplain. He was posted to Cantonment of Dinapur in 1806. After travelling in a string of barges which covered about seven miles a day from Calcutta to Dinapur and with a good store of brandy as an antidote against malaria, Martyn arrived there on the 22nd November, 1806. The Cantonment had no Chaplain for nearly a year. Captain Sherwood, the Regimental Pay Master and his wife used to read out prayers on Sundays.

Mrs. Shrrwood

Mrs. Sherwood used to write out 10,000 words a day if she had any leisure. Mrs Sherwood had great affection for this young Cambridge scholar Martyn and henceforth all the "good boys" of her novels were

named Henry. She had become a religious maniac in her later days in England and an extreme Calvinist. Her tracts for converting the Pope to the Protestant faith became famous.

There were hardly any married quarters for the soldiers at Dinapur Their wives and children had very little privacy and slept on the verandah on the single men's Barracks. Fifthy language and oaths were a part of the life of the children who had come to acquire the description of "regimental childɹen." Mrs Sherwood had started a school in a part of her bungalow (the present Cantonment Post Office) with the help of her husband's Attache, Sargent Clarke, who used to sit at one end of the verandah to dole out strokes with his belt to the boys when sent to him. Henry Martyn threw himself into this great work.

The First Church at Dinapur

There was no church at Dinapur at that time. A petition for this in 1798 had been turned down by the Company's Board in Calcutta. Martyn took up the matter again and was able to influence Lord Mornington, the Governor-General. Permission was given to build a new barrackroom which "might be used for church purposes unless required by the Regiment." This barrackroom still exists and has housed the Cantonment Cinema for a good many years.

Slave Children

Martyn took up the cause of the "Native Followers." They were usually the slave children whom the officers had bought out of charity in the slave market. Their future was well market out. Usually they found employment in the Regimental Bands or Workshops or in the domestic household while the girls were usually married to the private soldiers. The Company Commander used to be regularly approached for permission for such marriages. But they grew up in a morbid environment. Martyn devoted all his Dambridge scholarship and eloquence to give them a proper background. He made in Urdu translation of the book of common Prayer and was always rushing about on foot to look to the need of his flock. He was able to get a small church built in Dinapur bazar. He went on requesting the Board in Calcutta for Communion plate for his temporary church. The parcel containing the Chalice and Paten reached Dinapur in February 1810, two months after Martyn left. This church built by Martyn was destroyed in 1874 when there was a heavy flood in the River Ganga and Dinapur bazar was badly affected.

The work started by Martyn at Dinapur did not die out although the first Bishop, Dr. Thomas Middleton, in his first and only visit to

Dinapur in 1819 refused to hold the Confirmation because there was no consecrated church to hold it.

The Contanment Church a Dinapur which is still an important military station in a sub-Area has one distinction. There is a rest for the rifle on the seats. The soldiers of yore used to go to the Church with their rifles as any moment they might hear the alarm to rush out with their rifles.

There are still some old barracks and buildings which are more than a century old. The residential area has some very old bung allows. The furniture-mart has still some very old shops. Some of the roads go by the name of old famous military officers.

BOOK REVIEWS

THE STUDY OF INTERNATIONAL AFFAIRS : ESSAYS IN HONOUR OF KENNETH YOUNGER

ed. by ROGAR MORGAN

(Published by Oxford University Press, London, 1972) pp 309, Price £ 5.00

A STUDY OF INTERNATIONAL AFFAIRS which is edited by Roger Morgan is a series of essays by a number of distinguished writers, each in his own field and the whole have been put together and the book published in honour of Kenneth Younger. The subjects covered very from human rights in international relations, to the politics of co-operation and integration in Western Europe and South Asia. This volume has been published in honour of the former Director of Chatham House, as it is commonly known, wherein is located the Royal Institute of International Affairs. This is a non-official body which promotes the scientific study of international questions and therefore does not purport to express any opinion other than those of the writers, but it is difficult to assume that various government organisations would not call upon this body for study of specific questions in which they are interested. Because a study in vaccum of any question without relation to the realities of a situation is a meaningless exercise. This book, though interesting reading in itself, is perhaps not for the casual student of international affairs but more so for the serious practioner in the field. It is, however, recommended for reading not only for Foreign Service personnel, but also for Service officers, who in the course of their duties, find themselves involved with foreign missions, military or otherwise. Certainly a must for command libraries.

—KAY

BRITISH FOREIGN POLICY SINCE SUEZ 1956-1968

by DONALD MACLEAN

(Published by Hodder and Stoughton, London, 1970) Pp. 343, Price 55 sh/-

A SCHOLARLY BOOK, into which a tremendous amount of labour and research has been put in spite of which, it is not cluttered with footnotes etc., and is very interesting and makes easy reading. The book covers the period 1956-1968, which for Britain was a crucial decade, because after the debacle of the joint Anglo-French attack on Egypt in 1956, the position of Britain in the councils of world affairs was certainly at its lowest since the end of World War II in 1945. As will be easily appreciated, no one relationship with a single country can spell out its total foreign policy—but the sum total of actions, reactions and their consequences, with all the countries in the world, will, if assessed and summarised, provide a reasonable clue to the direction in which the country

is going as a result of the policy it has been following. What its consequences will be to that country and the rest of the world. Hence for ease of following the subject matter, in its diverse aspects the book has been divided into three parts covering policies followed by Britain towards other western powers, the Third World and the Communist powers. The book is a mine of little known information and provides food for very serious thought for all those interested in international affairs.

What makes this book doubly interesting is the fact that it has been written by Donald Maclean who spent the first 16 years of his working life in the British diplomatic service, and then disappeared from the Western world in 1951. He is today a member of one of the Institutes of the Russian Academy of Sciences in Moscow, and has stated that the opinions and conclusions stated in this book are entirely his own, the fact that this book has been written in Russia, but interestingly enough, published in London, is likely to make the reader wonder considerably about both the source materials for this study and the conclusions it states. There is no bibliography in the book. The book in spite of its limitations is a must for libraries and students of international affairs. Because though Britain may not today be one of the leading powers, her voice will yet be heard in the councils of the nations for years to come, and her doings will have repercussions for all, especially members of the Third World.

—KAY

BRITISH DIPLOMACY IN NORTH INDIA: A STUDY OF THE DELHI RESIDENCY 1803-1857.

by K.N. PANIKKAR

(Published by Associated Publishing House, New Delhi, 1968) pp 200, Price 25.00.

MUCH has been written in the past by various writers on how the British acquired control of the Indian sub-continent wherein the first step was the factory and thereafter as the Resident at the Mughal Court of Delhi, running the administration in everything but name until they felt strong enough to dispense totally with the name of the Mugal Emperor and his Farman in the day-to-day administration. This study no doubt is interesting and goes over a lot of old ground in a new pattern. There is a fairly extensive bibliography and it is recommended for reading by those interested in the subject.

As is well known, the phase covered by Mr. *Panikkar's* study, for which he should be complimented covers that phase of British penetration in India which has elsewhere been described under the term "Builders of the Indian Empire". It also depicts quite clearly that even at the stage when the British were virtually ruling India, even though in the name of the Mugal Emperor, how very cautious they were in their dealings both with the public and the neighbouring Punjab States. As is well known indeed the fundamentals of their policy were always to loot for the weakest link, subvert it, and thereafter swallow up the resk piecemeal. It also makes interesting reading to see how the implementa-

tion of their policies varied and changed from time to time with the differing personalities of their Residents and their Governors Generals.

—KAY

THE INDIA WE LEFT

by HUMPHREY TRAVELYAN

Published by Macmillan, London, 1972) Pp 255 Price £ 3.95

THE GRAND TRUNK ROAD: KHYBER TO CALCUTTA

by JOHN WILAS

(Published by Elek, London, 1972) Pp 161, Price £ 3.50

THIS brace of books on India differ in almost every respect but one. The former deals with the lives of its author from 1929 to 1947 and of his great-uncle from 1826 to 1865. The latter deals with the author's journey from the Khyber to Calcutta along the Grand Trunk Road in very recent years. The two authors came from very different backgrouuds, and their writings stem from that. In the former book we read of the stormy but fascinating career of Charles Edward Trevlyan, an ICS man of the 'old school', and who incidentally married the sister of Lord Macaulay, then Member of the Executive Council, and of the author, a member of the Indian Political Service who ended up as one of the founder-members of the post-Independence External Affairs Ministry. John Wiles was born in India, at the Military Hospital, Kasauli, to be exact. His father taught at the Lawrence School, Sanawar. He writes of his journey from the point of view of the fairly recent phenomena, the footloose young foreigner travelling and living on the cheap in as Indian a fashion as possible.

One can continue to adnumber these dissimilarities. The greatest similarity though, is not the fact that both these books are about the sub-continent as a whole. That is taken almost for granted. Through both these books runs the common theme of both the authors—their transparent interest in, and love for the sub-continent, (which when viewed from outside, can still be seen as a whole) and for the nostalgia it still evokes in many an English heart. Let it be added hurriedly that there is not a tinge of regret or bitterness in this. John Wiles' description of his old school at Sanawar which he re-visits (even though it is off the Grand Trunk Road) is indeed moving. Many of our younger readers would echo the sentiments expressed, remembering their own days of not so many years ago at the same school. Some of the older readers of this Journal would also be able to recall with Humphery Trevelyan their happy carefree days in pre-world war II Bangalore.

To this reviewer, these are but incidental pickings from a veritable feast.. What fascinated this reviewer was the manner in which common things which we all in this counrty can see daily for ourselves and take for granted, can be transmuted when seen from the outside. For instance, how many of our readers would have even considered spending their

leave hitch-hiking on a budget of a rupee or two a day, living like a very very common man indeed and enjoying it too? How much more would we be in tune with what is going on in our own country? Is it too though for us or is it that bred as we are on the Macaulayan system of education we have pretended to take on the burden shed by the Trevelyans and other "Sahibs of the past, and cannot condescend to mix freely with our own people's ? Probably it is for that reason that few of us can "feel the strong pluse of Cacutta long before it is reached" at the end of the Grand Trunk Road, as John wiles does.

Lord Trevelyan has some most penetrating remarks to make on the "old order". To some of us in India that period now seems alluringly attractive, beset as we are now by the complexities and tribulations of those in authority in a developing nation. It seemed such as imple, well ordered life, when all the difficult decisions were taken in London, and only the polo, the hunt and the social rounds are remembered. But Lord Trevelyan maintains that. "A political officer endowed with a modicum of imagination realises how infuriating it must be for a Ruler to have a busybody sitting on his doorstep.....Perhaps, after all, the 'political' were the Maharajas' only real friends.....At the same time if the political officer had a conscience, he knew how often he was faced with oppression but powerless to prevent it. He knew then only too well what people were thinking when they saw him leave after a round of entertainment with no apparant consciousness of what was beneath the fair surface so carefully prepared for him".

Of the Nehru era, the author is equally percipient. "Here was a man who had spent his life fighting the British, who had only recently been released from prison, but who appeared to be completly without bitterness.....Nehru was not objective when dealing with frontier affairs .....He lost his composure when dealing with the Pakistanis". He tells how Ikranulla, later Pakistan's High Commissioner in London was treated, when Pakistan was to be given an opportunity to form a foreign ministry in embryo from a cell in the External Affairs Ministry. "Ikranulla was a man of resources. He once said to me in London, 'You know all these letters which have been appearing in the Press about Kashmir from retired British Officers, I write them".

After 26 years of Independence the impact of the British is less strong. In many ways it will never be obliterated. We on the subcontinent may still be waiting, or striving to work out our new alignments. But a point which needs to be taken by our British friends is that while London was our exclusive window on the world in the past, that is no longer so today. The universities in the U.S.A. other Commanwealth countries, and even in other non-English speaking countries take a percentage of our intelligentisa which would have wended its way in the past exclusively to Oxbridge and the London School of Economics. On the other hand, more English is spoken by more of the educated in India than ever before, although this is begining to bear a distinct Indian flavour. The Sunday holiday, which so horrified Charles Edward Trevelyan in the last century is now a firmly rooted fixture in the country. Possibly it is these contradictory trends which makes one read with a wry smile of the Brighton Festival of 1973, which had as its theme, 'the British connection with India'. —AMS

Fighting General

by Tom Pocock

(Published by Collins, London, 1973) Pp 280 Price £ 3.00

TOM POCOCK'S Fighting General is built on two strands : the career of General Sir Walter Walker, and the transformation of the British Empire. It is of considerable interest, for this biography; unlike many others, does not deal with battles which contributed towards the building of the Empire, but is concerning those which were fought in the Empire's twilight. During his earlier days General Walker had a career, typical of many British Officers in the Indian Army. He started off seeing field service in the old North West Frontier Province. He had his share of regimental, staff, instructional and formation experience, taking in his stride the Second World War. His battle exprience in Burma was of particular importance to him when he tasted independent command in Malaya and Borneo. True to the officers of his generation, his regimental pride was an abiding one. This, and the deep understanding of the socio-economic content of the insurgency of the Communists paved the way for his success.

It is doubtful if the future officers of the British Army would have such opportunities to 'grow'. If they do not, it is possible that they may shape like the French officers of pre-World War I era, when idealism ruled the roost. Practical experience has exercised considerable influence in the shaping of the career of many a noted general, including General Walker.

During the after-glow of the Empire civil-military relations are bound to become difficult. In a democracy, it would be incorrect for the politician and the military leader to keep closed doors. More than official channels are needed to establish rapport and win mutual confidence. Without the ability to work as one team, no great or lasting achievements are possible. Perhaps Gen Walkers difficulties with General Goodpaster may be traced back to this weakness.

Readers will also get a bird's eye view of the British Indian Army, of the 'good old days', and of course of the international Gurkha brotherhood.

—TNRN

De Gaulle the Warrior

by Brian Crozier

(Pubilshed by Eyre Metheun, London, 1973) Pp 395, Price £ 7.00.

THIS, the first volume of the biography of Charles de Gaulle, covers the period from his birth in 1890 to his disillusioned retirement in 1946, after his attempt to introduce a new Constitution, as Head of the Provisional Government, had failed. As such, it is appropriately titled, 'de Gaulle the warrior'.

The author describes the young army Captain, presumed dead by his comrades in 1916 but captured by the Germans : the intellectual officer, once Petain's protege, preaching the need for a mechanised professional army before the Second World War : the soldier who in 1940, on the fall of France, defied Petain and Laval and imposed himself in Britain as legitimate leader of Free France and restorer of France's position in the world. He recalls de Gaulle's petulence as well as his tenacity, the incessant quarrels with Churchill and Roosevelt and throws new light on such questions as the mysterious Muselier affair, as well as the struggle with Giroud for power in North Africa, the role and organisation of the Resistance, relations with the Vichy government and the struggle for supremacy in France in the wake of the invading Allied Armies in 1944-45.

The popular image of de Gaulle abroad was that of a dictator : a man who was petulent, stubborn, self-opiniated and difficult to deal with. This has been further strengthened by the war memoirs of Churchill and other Allied leaders. The virtue of this fascinating book lies in the author's great objectivity : he has equally highlighted the drawbacks as well as the noble traits of de Gaulle's character and thus presents an impartial assessments of his failures and achievements. He has given a delightful account of how de Gaulle, against overwhelming odds, singly and stubbornly, pleaded for the creation of a mechanised army for his country ; refused to accept that all was lost with the fall of France ; insisted that he who epitomised the spirit and soul of fallen France should be heard by the Allied leaders and how he never for a moment showed the slightest sign of wavering in his belief in the ultimate resurgence of his beloved France to its formal glory, of grandeur, might and prosperity. The reader gets an idea of the tenacity, singlemindedness and high patriotism of the man from the details of the persistent antipathy of Roosevelt, aided and abetted by Churchill, towards him. "Never", was he later to lament, "did the Anglo-Saxons consent to treat us as veritable allies. Never did they consult us, from government to government, on any of their arrangements".

The author tells us that as early as 1932, de Gaulle had set out his master-ideas on the requirements of leadership in the most important of his shorter works, *Le Fil de l'Epee*-"The Edge of the Sword"-and how, undeflected from his chosen course, he carried his ideas with him throughout his whole life. The young de Gaulle knew, of course, or felt in his bones, that a time would come when he would act out the part he then wrote. All his life, as de Gaulle himself put it, he had a "certain idea of France", but he could never hide his contempt for the French people, who perennially disappointed him by their patent unworthiness of the country of his vision. As the author aptly says, "Nothing written today can diminish the aura of General de Gaulles wartime exploit. But history may well record the verdict that as a writer, he wrote too little : as a soldier, he fought too little : and as a statesman, he came too late". It is idle to speculate what would have happened if de Gaulle had succeeded in persuading the politicians to accept the Constitution proposed by him in 1946. It would, unfortunately, remain one of the 'Ifs' of history.

—SCM

Rear Admiral John Rodgers 1812-1882.

by Robert Erwin Johnson

(Published by United States Naval Institute, Annapolis, 1967) Pp 426

THIS delightful biography, published under the aegis of the U. S. Naval Institute, is written by an obvious admirer of the admiral and depicts the formative stage of the American Navy. Rear Admiral John Rodgers may well be termed one of the important ancestors in the history of America's famous Admirals. Because of his father, also a Naval Officer, he was nominated into the Navy as a Naval cadet, and rose by sheer dint of hard work and utmost devotion to his profession to the then highest rank available to an officer of the American Navy. i.e. Rear Admiral. During his period of service, the rank of Rear Admiral first came into being in the American Navy and when he died in harness as the President of the U.S. Naval Institute in 1882, formal rules for retirement of Naval Officers were in the process of being organised and promulgated in the American Navy.

His period of service saw the early days of the transition of the American Navy from sailing vessels to steam. He joined the Navy in February 1829 as an acting mid-ship man and rose to the rank of Rear Admiral in 1869. When he went out as Commander-in-chief of the American Asiatic fleet, he was no stranger to these waters, as he had been in command of the North Pacific Surveying Expedition and had carried out surveys of the Korean, Japanese, and portions of the Chinese coast in earlier years. An officer of many parts, who carried out early trials of naval guns and ironclads coming into service in the American Navy. The present day American Naval Observatory is the Brain child of this officer, and for a while he was Superintendent of the Observatory. During the war with France, he served afloat and also during the American Civil War made a name for himself.

In fact, reading his biography one is left with the great feeling of devotion of this officer to his service and profession and at every possible turn of events, he always preferred being afloat to being ashore in any capacity. A very competent, talented Naval Officer who has left a legacy which even the modern Naval officer can follow with profit to himself and to his service. The Indian Navy by and large has done much study and followed the precedents of the British Royal Navy and it is strongly recommended that books like this would make very profitable reading for the modern young officer of the Navy. Even for officers of other Defence services, his example and devotion to duty is worth emulating. Strongly recommended for all service libraries. —KAY

Tradition Never Dies : The Genesis and Growth of the Indian Army

by Bawa Sunder Singh

(Published by Lalvani Publishing House, Bombay, 1972) Pp 197, Price Rs. 25.00

THE Genesis and Growth of the Indian Army' which is the sub title of the book under review, is a subject which has been crying out to be

written for a public now keen and interested as never before in the Armed Forces of the country. The euphonic era following the December 1971 war produced a rash of books on Indian military topics. However, much to our regret, this book is only one such and the author does little justice to the vast and fascinating subject at his disposal.

The author has rightly taken a wide canvas, and attempted to trace the evolution of the Army, from the medieval to the modern era. For good measure, he has ended by with a chapter entitled. "The Quest for Security", in which he examines the role of the Army in the country's current set-up. These are laudable intentions, but the book itself falls much short of the expectations raised.

To begin with, the author's style. One sample is from the chapter dealing with the "Great War" (1914-1918),

> "In June 1914, Ferdinand, crown prince of Austria—Hungary, left on a vacation to the satellite but hostile Slav state of Bosnia, then feverishly claiming liberation. In paying the visit, the royal visitor, evidently felt sure that his plans were in order, and that he could have had no serious suspicion that anything was afoot against him in the Bosnian capital of Serajevo. A Slav youth engulfed with mad berserk rage against Ferdinand, the icon of Austrian imperialism, assassinated the royal visitor. The rebuttal of Serbia, then claiming irredentist Slav territories in acquiescing to the Austrian ultimatum to root out the movement for Yugoslavia, was a serious blow to the Austrian prestige."

A more serious weakness lies in the selection of episodes and incidents the author has drawn upon to explain his contention that tradition never dies. To a lay reader this kaleidoscopic series of pictures cannot mean much. Indeed, it might give a mistaken notion. Our public in India, is not well informed about our Armed Forces. Even amongst the educated, first-hand knowledge of service life is lacking. For a long time, the armed Forces were drawn from certain regions and from certain classes. (This was not always the case, even in the so-called "British" period of our history). Until recently soldiers had fought their battles, in most cases in a limited sphere for a limited purpose. These battles were often fierce but more often that not, they meant little to the vast population of the country who merely wanted to continue eking out their precarious existence in peace. In the 'twenties and thirties of this century, some questions were raised by the politically conscious India on the part played by the Armed Forces in the nation's march towards Independence, but these were muted and mostly in a low key. The Armed Forces, (and at that time it meant the army in the main) were kept insulated and isolated from the mainstream of the country. This "tradition" was fortified during the priod of World War II and continued for some time, even after Independence. During World War II and thereafter there was a widening of the base from the Forces were recruited but this was marginal in the national context, in that, the vast majority of the population had little contact with the Forces.

The fighting in 1947/48 in Kashmir evoked some response from the general population. However the country was more concerned with the immediate problems of partition and mass migration than in the exploits of the Army. The ignomy of our defeat in 1962 was explained away in political terms but little was done to make the general public realise the exact nature of the problems of the armed forces of a democracy or the military

weaknesses of the Army at that time. It was only after the operations of 1965, and those of 1971 in particular, that the general public started to take a little more intimate interest in our Forces.

The author spends much time describing the part played by the Army in the battles of World War I and II, but this turns out to be only a "potted" revision of recent military history-disconnected and almost incom prehensible to the non-Service reader. The manner in which he deals with the "class composition" of the Army also is hardly comprehensible to the general public. Some doubts might even be raised as to whether the country produces and good soldiers except from a particular class, from one comparatively small State. In the chapter covering the 1971 operations, it is somewhat surprising to find not even a mention of the name of the Chief of the Army Staff whereas there seem to be a plethora of "Singhs", whether they be Sepoys or Generals.

All in all, this is a disappointing book, considering the scope and extent of the subject. —ANS

MAN STATE AND SOCIETY IN THE CONTEMPORARY MIDDLE EAST S.P.
by JACOB M LANDAN
(Published by Pall Mall, London, 1972) pp 532 Price £ 4.50

THE book under review belongs to the series on "Man, State, and Society" in major areas of the world intended to present an introduction to the basic social, political and cultural changes in each region with the help of selected writings by distinguished scholars in various fields of study.

The term "Middle East" is often used by scholars, statemen and foreign offices in an arbitrary fashion to designate the area stretching from Morocco to Iran or segments thereof. Professor Landau makes the resultant confusion worse confounded by projecting yet another definition of "Middle East" encompassing the area between Egypt and Iraq, including Syria, Lebanon, Israel, Jordan, and the Arabian Peninsula, but excluding Iran and Turkey.

The book is divided into two parts under the rubrics State and Politics, and Views of Society and Man. Selections under the first include an autobiographical piece titled "An Arab Nationalist" (Edward Atiyah) "Politics in Kuwait" (Naseer A. Aruri), "The Jordanian Parliament" (Kamel S. Abu Jaber), "Qasim and the Iraqi Communist Party (Oles M. Smolansky), "The Middle East : 1968" (American Professors for Peace in the Middle East) and "Forward to Peace" (Abba Eban) ; those under the second range from "Minorities in the Arab. Orient Today" (Pierre Roudot), to "Change and Continuity in Israeli Society" (S.N. Eisenstadt) "Arab Education" (Fahim I. Qubain), "The Idea of Progress in an Iraqi Village" (Malcolm N. Quint), "Camps and Movements of the Bedouin" (Emanuel Marx).

While none of the articles produced in this volume is without merit the choice does not add up to a well-rounded introduction to the study of the Middle East. No such selection can be reasonably expected to be exhaustive ; but in order to be useful to the beginner it must be fairly representative. This is where the editor of the present volume seems to have faltered. Of the thirty-one articles included, as many as seven deal with Israel alone. And the economic problems of the contemporary Middle East are entirely ignored. This flaw is only partly rectified by the editor's short but concise introduction. —MSA

CORRESPONDENCE

Correspondence is invited on subject which have been dealt with in the Journal or which are of general interest in the Services.

To
THE EDITOR
USI JOURNAL
KASHMIR HOUSE,
KING GEORGE AVENUE
NEW DELHI 110001.

I

19 INFANTRY DAGGER DIVISION

I HAVE always had happy memories of 19 Div which I raised in Secunderabad in October 1941. My wife, Frances, designed the Dagger sign for the Division. I was actually in hospital in Quetta recovering from an operation when I was offered the command. I was of course keen to accept it and, as the division was not going to be ready for active service for six months, my ADMS agreed that I should do so. Unfortunately when I had only been commanding for six weeks, my friend Major General Lewis, who was commanding 17 Div went sick and I was transferred to 17 Div which was about to move to Baghdad.

However the Japanese war then started, two of my 17 Div brigades were sent to Singapore and I was ordered to take the remaining brigade to Burma, where the Japs had already invaded. As soon as I got there I asked for 48 (Gurkha) Brigade from my old 19 Div, commanded by Brigadier Noel Hugh-Jones. They arrived only just in time to take part in the Sittang Bridge disaster—for which no member of the division can take any blame or responsibility whatsoever.

The order from on high which kept 17 Div holding the Bilin ditch in deep jungle for a whole week, whilst a second Jap division was turning our flanks and making for the Sittang Bridge 40 miles behind us, was military murder—and it was a tragedy that the Gurkha Brigade should have been the chief sufferers. The only hero of this sad occasion was the Brigade Commander, Noel Hugh-Jones, who was the first brigade commander of the Dagger Division to become involved in active operations. He asked for my permission to blow the Sittang Bridge when it would otherwise have fallen into the hands of the Japanese who would then have marched straight on to Rangoon.

The official report, made by people who weren't there, made out that he blew the bridge when my brigades on the wrong side of the Sit-

tang were fighting their way towards it. This was a complete myth. The two brigadiers on the wrong side of the river were hiding up in patches of jungle surrounded by Japs, and there was never any indication that our troops across the river could break through the Japanese division assault on the bridge.

When the bridge was blown and the Japs drew off and marched ten miles up stream to effect another crossing, 3,000 officers and men of 17 Div swam or ferried themselves across. If it handn't been for Brigadier Hugh-Jones' swift and accurate appreciation of the situation, the Japs might have been able to invade India before the monsoon. Brigadier Noel Hugh-Jones should always be a 19 Div hero. He was subjected to a lot of uninformed criticism and he himself, whose only worry was that I had to bear the blame—which I gladly did—took his own life when the pressure became too great.

Pete Rees had been one of my 'Backward Boys' class in Simla for the officers studying for the Staff College. I somehow managed to get him into Camberley but exams were not his strong point. When he did get there, in 1933, I was one of his teachers for his first year and Bill Slim, who succeeded me, for his second. Pete and I were the closest friends. He always used to refer to 19 Div as 'Jackie's Baby' and when the Dagger Division captured Mandalay he sent this signal : "I wish you could have seen your baby—the 19 Div. Even by your own high standards I feel you would have given them your approval. The chaps fought splendidly and now we have got to finish off the little yellow men altogether". And they did.

After the war, only a few weeks before Pete's death, he lunched with me at my Club in London. I was horrified at his appearance and insisted on his seeing a heart specialist. On the day he was booked for it, the doctor rang me and said, "Your friend General Rees didn't come", I told him, "No, he had another appointment. He died last night.'

807 Nelson House
Dolphin Square
London, Swiv 3pa
18 Dec : 1972

Jackie Smyth
(Brigader The Pt Hon.
Sir. John Smyth Bt., V.C., M.C.,)

II

JUNIOR LEADERSHIP—INFANTRY— (USI JOURNAL APRIL—JUNE 1973)

Sir,

THE author has touched a hornet' nest in pleading the case of JCOLE. It is an established fact that there is something wrong with this rank. All the top brass has been beating about the bush without

doing anything substantial, merely preaching sermons to present day COs. They are afraid of calling a spade a spade as they are suffering from guilty consciousness. I wish to rub a few points home.

It was only after 1962 and 1965 that a cry about the low standard of JCOs was raised. It means that the rot must have set in the late 50s. and early 60s. Who were the COs at that time ? Who were at the helm of affair at that time ? It was the present top brass, including the author. They are the people who are responsible for whatever the JCOs are at present—good or bad. There were no NDA boys to fool around at that time. So what right have the guilty got to preach sermons to present COs (most of them ex=NDA) ? The author has himself confessed that the leadership crisis was much less in 1971. Don't you think it is a tribute to present COs that they have been able to stem the rot set in by the COs of the 50s and 60s who got quick undeserved promotions after getting emergency and short-service commission after partition ?

Since the author has passed some remarks about ex-NDA officers, I cannot help saying that some of the top brass who have not had the opportunity of going through this prestigious institution, feel jealous of NDA boys cleverness, cunning, intellect, general knowledge, dash and bravery. The NDA boys dodge only those who want to be dodged, or those officers who are of low IQ. They cannot suffer the outrageously third-rate officers. The proof of the pudding is in eating. During 1971, NDA boys were commanding battalions, and the good results of the operations are due to them. One can count MVC winners on finger tips. To name only a few, Lt Col Shamsher Singh, Lt Col V P Ghai (Posthumous), Lt Col HC Pathak and Lt Col R K Singh, all from 5th JSW, won MVCs. Mind you Khetar Pal and Sekhon were also NDA products.

It is very difficult to change the thinking of old diehards. It is quite fallacious to compare the World War II leadership with present day leadership. The values have changed completely with political and social environments. The Army is no more a noble or a prestigious profession. A JCO, though a gazetted officer does not carry any prestige in his village or with civil officials. The result is that in units OR hardly take any notice of his presence. Other contributry factors of his downfall are :—

(a) Illiteracy.
(b) Old age.
(c) Bad training.

With increase of literacy a number of graduates and matriculates join the ranks. Clearly a JCO who has been able to pass his army education tests with difficulty cannot impress this educated class, result-

ing poor leadership. JCOs also think of this educated class in the same manner as the author thinks about NDA boys. Therefore there is no short cut to increasing the minimum eduational qualification of JCOs to Matriculation. It may be impertinent to point out that the Army is the only department of the government where below-matric individuals become Class II gazetted officers. Isn't it too cheap ?

Every one accepts old age is a factor for the JCO's poor leadership It is very easy to overcome this. At present there is no direct recruitment to this rank. The Reasons are mysterious. If BSF can have direct recruitment and be happy with it, there is no reason why it cannot work in the Army. It is suggested that 25 per cent recruitment should be direct through SSBs. It could be increased to 50 per cent gradually in phases. Serving potential NCOs could also appear for this competition as they do for permanent commission. It will have the following advantages :—

(a) Young and educated material will be attracted.
(b) It will be a good blend of mature, experienced oldtimers and youth.
(c) It will create a healthy competition between the JCOs.
(d) The promotion incentives for serving personnel will remain the same.

Last but not the least is the training of JCOs. It is no ex-aggeration if I say that there is no training worth the name. It is ill-planned, and at times on paper only. It is mainly cadre-based for which there is neither time nor trained instructors. This is one aspect for which JCOs cannot be blamed. There is no short-cut to centralising this training either at army level or at regimental or divisional level. In fact an institution on the pattern of OTS is required, where all direct entry and serving potential NCOs should be made to undergo six months training This will prove to be a panacea of all ills.

If I have been blunt and forth-right, well, it is one of the traits of NDA boys. Do you get me, Sir ?

KULDIP SINGH
(5th JSW)

III

NEED REVOLUTIONISING OUR ARMOURED FORMATIONS.

Sir,

I HAD the opportunity to read a very thought provoking article titled "A new Armoured Force For India" by Ravi Rikhye in April/

June 1973 issue of your esteemed Journal. This brief paper certainly proves our obsolescence in the field of Army's armoured potential, logistics tics and mobility. The auther certainly deserves appreciation for not only pointing out the degree of our out-datedness, with respect to modern military doctrine and concept as adopted elsewhere, but, also convincingly suggests the alternative composition based on new ideas and equipments which are yet to be adopted in our Army. At this junction, the immediate argument against this idea, which could have been put forward by the conservatives as well as our 'critically' sensitive economic wizards, was that of cost consideration and the same has already been very effectively neutralised by the author.

Well that does not mean that all problems in the path of putting this idea into practice stand solved. Problems will be still there and they can definitely be solved, if we decide and go ahead, with a sound plan of reorganisation affecting complete change over of thought-process and action. This particular doctrine cannot be dismissed as a case of arm-chair strategic adventurism' since the same has been effectively adopted by NATO countries in Europe as well as successfully practiced by Israel in her various wars of survival.

In this paper, the auther is able to prove that by adopting this change, we are able to increase the fire power by a factor of two, mobility by a factor of eight and reconnaissance capability by a factor of 25 and at the same time reducing man power engaged by 40% as well as affecting no appreciable change in the finances.

Problem remains that of importing helicopters and other more sophisticated equipments required, which can be solved only by our undeterred determination to do so, at the highest level of our Government, since we otherwise too, considerably depend upon imports in the field of almost all heavy weaponry and communication systems of the three services.

It is high time, that this idea is seriously studied and examined by our General Staff and the Government with an intention of implementation. Here we must not forget that during 1971 war with Pakistan we did get bogged down in the Rajasthan Sector inspite of encouraging prospects for decisive military gains.

A change is definitely required with passage of time and our military preparedness must not be itself obsolete, since whatever the political and other factors may be, fact remains that there is no substitute for complete victory in war.

Major CB VERMA

PORT BLAIR
(ANDAMANS)
22 Nov. 73

IV

MR VICE THE PRESIDENT

Sir,

Apropos your article MR. VICE THE PRESIDENT by Brig NB GRANT AvSM. Off late a trend has emerged in our senior officers articles to criticize our various system and traditions. Constructive criticm is welcome but not by an officer who has enjoyed and grown up in the very atmosphere that he has now deemed fit to be called untraditional and derogatory.

2. Some salient points are :—

(a) *Toasts.* A very healthy custom. The only way in a soldiers life when he recognises his loyalities to the President, his Colonel of the Regiment. It is a good reminder and awakens ones loyalties.

(b) *Regimental Traditions.* We have some battalions in our army which are about 200 years old and healthy traditions are part of it to make the basic distinction and to make one take pride in his battalion. Faulty traditions or traditions of which no ancestory is known must be ruthlessly discarded.

(c) *Messes.* They are really becoming a bone of contention between senior officers and junior officers who are serving in the battalion/Regiment. Either Brig GRANT did not have a good mess life or his arguments are too flaky. The grooming of an officer socially and professionally starts in the mess. If messes are abolished officers will be found having unlimited drinks in their rooms, cultivating no social graces and indulging in no rapport amongst officers. This facility is handed down by Britishers but we have adopted it for our own good. Where will a youngster go when he is required every minute of the day in the Battalion. Financially it is the best place for a youngster drawing Rs 700.00 and odd rupees. Who can have three wholesome good meals for Rs 6.50 a day. The argument is baseless.

3. Lastly I would like to bring out a fact everyone seems to enjoy his good days till he is a Lt Col and then tries and cut down on everything else in national interest—thinking with a hind sight in their greying days.

Major DN SOOD

5 GUARDS C/O 56 APO
26 Oct. 73

V

RENOVATION OF ENTRANCE EXAMINATION DEFENCE SERVICES STAFF COLLEGE

INNOVATION is needed in every sphere of life to keep pace with the galloping advance of science. The present system of entrance examination for DSSC was developed at the inception of DSSC. Is the system valid in the contemporary world or should it be replaced by a better system. There is imperative need for taking a fresh look at the problem. The Aim of this letter is to carry out a diagnosis and to recommend remedieso the existing system.

The syllabus for the entrance examination is fairly exhaustive. But to test officers only though written papers is to encourage 'Paper Tigers'. For our counterparts in civil services i.e. IAS, IPS and other private jobs, viva voce is given significant importance. Personality test is more important for an Army Officer than for an administrator or a police officer. It is agreed that an officer is to be in 'Shape' before being eligible for recommendation but being just in 'shape' is no guarantee of a good personality. To leave the responsibility of checking personality to Service Selection Board would also be incorrect.

It is agonising to see officers with stooping shoulders, thick spectacles and big waistline with baggy trousers guiding the destiny of the army, which is proud of its physical performance. Viva would be a good check on those officers who possess below-average physical Personality but with their efforts and cramming power aim to get into ambitious positions.

The papers are to be answered in English. Public School boys and those brought up in towns have inherant advantages over the officer who hails from villages or joins the officer cadre through the ranks. Viva can assist in cross-checking the depth of genuine knowledge.

Regimental Service

Officers are becoming more career-conscious. The number of officers appearing for DSSC each year is on the increase. This has led to a lack of interest towards regimental service. It is the welfare of the men which is neglected. One often comes across such bookworms who get down to the staff officers handbook immediately after three years' service cramming the GS Publications. The devotion of such officers for next two years is towards preparation for the staff college than towards their men.

To increase the importance of Regimental Services, certain additional marks should be allotted to officers with regimental service over

and above the minimum period of five years, (the minimum stipulated period of eligibility). A solution could be to allot two extra marks to every extra year over the five years of regimental service. Thus an officer with ten years regimental services would get ($5 \times 2 = 10$) ten extra points towards his points secured in written examination. This will act as a deterrant for those who after completing five years of regimental service rush to College of Combat for preparation for the staff college.

Question Papers

There is already a move to device a new objective test for candidates appearing for the IAS. Throughout the world test papers consist of free response questions requiring long, essay-type answers. A question paper with a mixture of fixed responses and free response would be an ideal way of judging a student. The question paper should be such that it calls for application of intelligence rather than exercise of memory.

Selection by Computer

It is yet to be seen how far the computer is correct in its selection of candidates. However one cannot overlook the fact that the computer is going to curb the style, creativeness and independence of views of many geniuses in the making. We need leaders with courage of conviction and not submissive followers or yes men. Selection by computer may have long-term adverse effects.

If being a PSC is like getting an "Allahdin's Lamp" for future promotion, it should be fool proof in its system to choose the correct material. I am sure if the system evolved is perfect much heart burning between a non—PSC and PSC will also die down.

Young Officer wing
The Infantry School
Belgaum

Maj. V.K. Singh

SECRETARY'S NOTES

ELECTIONE TO THE COUNCIL

As a result of the elections to the Council the following twelve members have been elected for 1973-74, names being given in alphabetical order :—

1 Lt Gen I S Gill PVSM, MC
2 Brig N B Grant AVSM (Retd.)
3 Maj Gen S P Malhotra, PVSM
4 Wing Comdr A Mazumdar, IAF
5 Cdr S M Misra, IN
6 Lt Gen Moti Sagar, PVSM (Retd.)
7 Lt Gen N S Nair, PVSM
8 Lt Gen R S Noronha, PVSM, MC (Retd.)
9 Maj Gen M R Rajwade, PVSM, VSM, MC
10 Lt Gen Sartaj Singh, GM
11 Air Commandor K D Singh, AVSM, IAF
12 Lt Gen M L Thapan

ANNUAL SUBSCRIPTION

I regret to say that there are still many members who have not yet paid subscription for 1973. Could I, therefore, request all members who have not yet paid their membership subscription for 1973, to let me have their remittance by return of post.

NEW MEMBERS

From 1st October to 31st December 1973 the following members joined the Institution :

Agarwal, Flt Lt. S.K.
Gupta, Sqn Ldr K.P.
Jain, Wg Comdr V.K.
Man Mohan Sharma, Lt Col
Narasimhan Sqn Ldr V.
Nath, Captain C.V.R.
Parvin Prakash Kapahi, Major
Puri Brig P.R. (Life)
Ranjit S. Grewal, Major
Rawat, Major D.P.S.
Salim Caleb, Major Gen, MVC (Life)
Sayal, Captain G.K. (Life)
Shivinder Singh Sindhu, Captain (Life)
Surya Kant Bhardwaj, Sqn Ldr (Life)

SUBSCRIBER MEMBERS

Two Officers Mess were enrolled as subscribing members during this period.

ADDITIONS TO THE USI LIBRARY

Book No.	*Author*	*Title*
	RELIGION	
294.553	Singh, Gopal	The Religion of the Sikhs, 1971
297	Holt, P.M. and others ed	Cambridge History of Islam 2 Vols. 1970.
	INTERNATIONAL RELATIONS	
327	Northedge, F.S. and Grieve, M.J.	A Hundred Year of International Relations, 1971.
	LAW	
340.4	Meld, Basil	Farewell to the Assizes : The Sixty-one Towns, 1972
	INTERNATIONAL LAW	
341.13	Elmandjra, Mahdi	The United Nations System and Analysis, 1973.
	MILITARY SCIENCE	
355	Featherstone, Donald F.	War Games through the ages. 3000 BC to 1500 AD, 1972
355	Palmer, Michael	Warfare, 1972
355.05	Kaul, Ravi ed.	The Chanakya Defence Annual 1972, 1972
355.095694	Allon, Yigal	The making of Israel's Army, 1970
355.310954	Singh, Bawa Sunder	Tradition never dies, 1972
355.425	Clutterbuck, Richard	Protest and the Urban Guerrilla, 1973
355.45	Enke, Stephen ed.	Defense Management, 1967
355.45	Hitch, C.J. and Mckean, R.N.	The Economics of Defence in the Nuclear Age, 1967
358.18	Von Senger, F.M. and Etterlin	German Tanks of World War II.
607	Nelkin, Dorothy	The University and the Military Research, 1972

INDIAN OCEAN

551.467	Kaushik, Devendra	The Indian Ocean, 1972

MANAGEMENT

658	Batten, J.D.	Beyond Management by Objectives, 1966
658	Desatnick, Robert L.	A Concise Guide to Management Development 1970
658	Killeen, Louis M.	Techniques of Inventory Management
658	Marvin, Philip	Multiplying Management-effectiveness, 1971
658	Merrill, HarWood F. ed	Classics in Management, 1970
658	Reeves, Elton T.	Management development for the Line Manager, 1969
658.01	Mcloughlin, William G	Fundamentals of Research Management, 1970
658.01	Ridge, Warren J.	Value Analysis for Better Management, 1969
658.3	Standingford, Oliver	Office : A book about Administrative Management, 1972
658.311	Plumbley, Philip and Williams, Roger	The person for the job, 1972

MUSIC

780	Holroyde, Peggy	Indian Music, 1972

MOUNTAINEERING

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